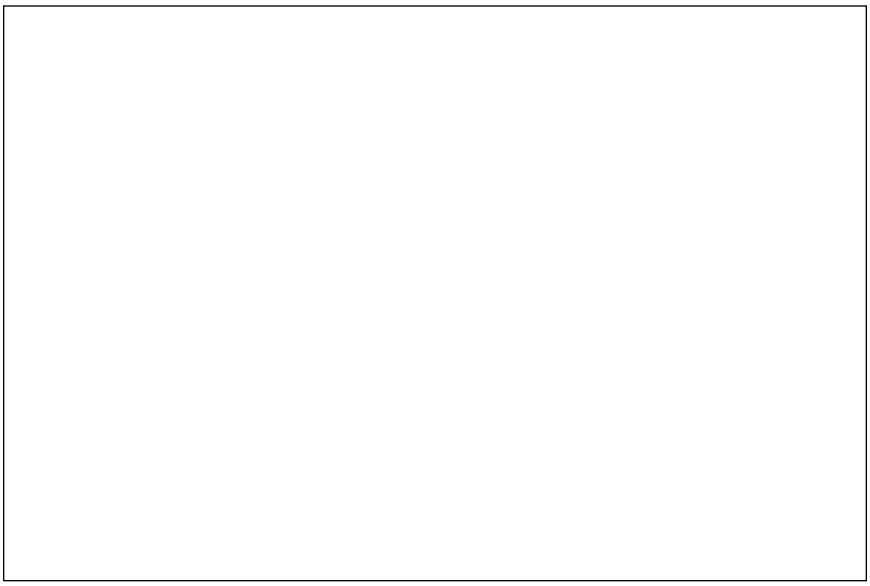
Doctrine for Strategic Air Attack



Seated (*left to right*) are Drs. James Titus, panel moderator from Air University's College of Aerospace Doctrine, Research, and Education, William P. Head, and David R. Mets. Standing (*also left to right*) are Maj. Mason Carpenter, Maj. (now Lt. Col.) Mark J. Conversino, and Dr. Karl P. Mueller.

Technology, Thought, Troops: Gen. Carl A. Spaatz and the Dawn of the Nuclear Age

David R. Mets

> The Military Mind is, of course, a catch phrase. For a good many years it has been used to suggest a pedantic, rather dull, professional soldier who was either monumentally stupid or unbelievably wrong about one thing or another. It was a caricature that was only occasionally accurate. Fortunately, there are not very many of him, not nearly so many, I sometimes suspect, as of his cousins in some of the other professions. This Colonel Blimp does not actually exist in great numbers, and where he does he is seldom important . . .
>
> Rear Admiral J.C. Wylie, USN, 1967

Introduction

This essay is intended to assess the role of Gen. Carl A. Spaatz in the post–World War II evolution of strategic air attack theory and doctrine. Although he was not the primary actor, Spaatz' career provides insights into the larger picture, specifically in terms of the current concept of the Revolution in Military Affairs. I will examine the influence (or lack thereof) of Carl Spaatz on the evolution of technologies, ideas and organization.[1]

Carl Spaatz claimed that his initial interest in military flying in 1910 at West Point came from witnessing Glenn Curtiss' famous flight down the Hudson River. Spaatz joined Army aviation before World War I and deployed in the Army's initial combat flying unit, the 1st Aero Squadron, with Pershing's Punitive Expedition to Mexico. He was a protégé of Billy Mitchell, serving as an expert witness about pursuit aviation at Mitchell's famous 1925 court-martial.

Spaatz was at Langley Field when the GHQ Air Force received its first B–17 and was in command when the Eighth Air Force deployed to England in 1942. After a year-long stint in the Mediterranean (in command of largely tactical operations), he returned with Eisenhower to England in early 1944. There he commanded the largest combat air forces ever employed by the United

States as the head of the U.S. Strategic Air Forces in Europe, which included the Fifteenth and Eighth Air Forces (and for administration, the Ninth as well). Those units conducted the most intense strategic bombing campaign in history. Thereafter, Gen. Henry Arnold sent him to the Pacific to assume control over those strategic air forces. He arrived just as the only two nuclear weapons ever used in combat were dropped.

Immediately after the war, Spaatz returned to Washington to understudy the ailing Arnold. As one of his first duties, he headed an Army Air Forces committee to explore the implications of atomic weapons for the future of air power. He became the last Commanding General of the U.S. Army Air Forces and the first Chief of Staff of the U.S. Air Force. Given his background, Spaatz was highly qualified to set the course for strategic air power at the onset of the nuclear age.[2]

At the helm of the air arm, Spaatz reorganized the Army Air Forces (AAF) along functional lines. To develop policy, he convened the AAF Air Board under the secretaryship of Gen. Hugh Knerr, and later the Aircraft and Weapons Board composed of the seniormost Air Force generals. He represented Air Force interests in testimony before congressional committees regarding the unification struggle, and later to presidential and congressional commissions.[3]

At first the AAF and the USAF paid relatively small attention to the strategic air attack mission. Spaatz, after all, had been the air commander in the North African Campaign where airmen finally won a measure of acceptance for their view of *tactical* air doctrine. It would be codified in Army Field Manual 100–20 in July of 1943,[4] whose main outlines would remain imbedded in USAF tactical air doctrine to the present. But in the immediate postwar years, Spaatz and other airmen pushed for a "balanced" seventy-group air force that that would include strategic attack and defense, ground and sea forces support, and transport.[5] A budget to support seventy groups was never approved. Instead, available funding went to the highest priority, the strategic forces, and too little remained for the tactical and transport forces predicated in constituting a seventy-group air force.[6]

Revolution in Military Affairs

The national security literature of the 1990s strongly suggests that the United States was in the midst of a Revolution in Military Affairs.[7] As described by James FitzSimmonds and Jan van Tol, that revolution is composed of three essential elements: a Military Technical Revolution, a consequent change in doctrine for the employment of the new technologies and, finally, an organizational adjustment needed to capitalize on the new materiel and doctrines. The following remarks will discuss each of those categories and Gen. Carl A. Spaatz' role in them before his retirement near the beginning of the Berlin Airlift in 1948.

Military Technical Revolution

At least since the middle of the nineteenth century, it has commonly been held that military technology is or should be driven by doctrine and strategy. Supposedly, operational commands envision how they will fight future wars, how they will establish the requirements for new technologies to implement those plans, and how the scientific and developmental commands will work to meet those requirements with new equipment, i.e., requirements pull. However, technologies sometimes arise more or less spontaneously and bubble upward toward the users who conceive of a doctrine and an organization to take advantage of the new machinery, i.e., technology push.[8] Consequently, it seems likely that technology and doctrine are interdependent and at varying times drive each other in an interactive way. So it was in Spaatz' time.

The *Question Mark* flight that Spaatz commanded in 1929 was to demonstrate that modern airframes and engines had become reliable and safe. It proved that aircraft could remain aloft for nearly a week through the use of air refueling.[9] Although it was clear during the 1930s that the technique might be a way to extend the combat radius of bombing, there was little development of aerial refueling in support of the strategic bombing mission.

During World War II, the AAF suffered because of the limited ranges of its bombers and especially of its fighters. Some tepid efforts to solve the problem of long-range escort through air-to-air refueling came to little in an aerial war requiring multiple attacks. During Spaatz' tenure as head of the air arm, refueling again received attention.

The B–47 first flew in 1947. It soon became apparent that the combination of jet engines with the sweptwing design yielded a far greater reduction in drag than had been anticipated. This finding resulted in a move away from the turboprop toward a pure jet solution.[10] By then, the enemy had changed. Neither the Navy nor the Army could reach vital interior targets in the USSR, so for a time American national defense requirements came to rely on bombers. One approach to achieving the necessary range was the development of intercontinental aircraft, resulting first in the slow B–36. Another was a conversion to gas-guzzling jet bombers that could be refueled in the air. The latter prospect seemed to be the more practical since any future atomic war was expected to be short; far fewer than twenty-five missions to the vital targets would be needed.[11]

Thus, an intensely felt requirement drove further development of air refueling. Forty years later, aerial refueling stood as one of the chief advantages enjoyed by the United States in the 1991 war against Iraq.[12] In the case of aerial refueling, an old technology lay dormant for two decades until a new requirement emerged to pull it into development and production, an illustration of simultaneous technology push and requirements pull.

Radar was another technological development that both influenced and

was influenced by operational and doctrinal considerations. Radar affected the Big Sky notion that the bomber would always get through, although development of long-range fighter escort during World War II provided a solution. Also, radar could guide bombers to the vicinity of the target in inclement weather, and the accuracy of bombing by radar was thought likely to improve as the technology advanced.[13]

"Nukes" were the most radical technological development of the modern age. In 1943 airmen were expected to fly a quota of twenty-five round trips to targets such as Schweinfurt and Berlin, although most crews did not attain that goal. In 1944 the required tour length was raised to thirty-five missions because the training system could not produce enough people for the rapidly growing bomber fleet, replace the losses and fight a two-ocean war. Even when the loss rate dropped to two or three percent, an individual's chance of completing his tour and going home was less than even. After Hiroshima, the power of the atom bomb seemed to prove that any war would be short, as Douhet had hoped. A crew might make a very few trips, sometimes only one, since AAF leaders acknowledged the possibility of one-way trips for atomic bombers.[14]

Like other senior Air Force leaders, Spaatz assumed that the future would bring only total war and that limited war was a phenomenon of the past. He led a postwar panel that tried to predict the impact of the atom bomb on the future air force. The panel concluded that atomic bombs would remain very big, very scarce and very expensive for a long time to come.[15] It was assumed that adversaries, and particularly the USSR, would acquire nuclear weapons and the means of delivery at some point in the future. Carrier aircraft, it was believed, would not be able to handle nuclear weapons because, at 10,000 pounds each, atomic bombs were too heavy for carrier operations.[16]

The Spaatz Board also concluded that a conventional as well as nuclear bombing capability would be needed and, as just indicated, that nuclear deterrence would depend on land-based bombers for some time. Therefore, overseas bases would be needed to accommodate the strategic air force. At the same time, the Air Force began to look for an intercontinental attack capability. Spaatz also envisioned ICBMs with nuclear warheads, supersonic travel, intercontinental jet bombers for transarctic missions and precision guided munitions. During his tenure, the intercontinental B–36 made its first flight, and the request for proposal that led to the B–52 was issued the day after he officially took office as the Commanding General.

Doctrine

I define *air theory* as a coherent body of ideas about the organization and employment of air power. *Doctrine* is a theory given formal written approval from an institution's highest legal authorities. *Strategy* is the application of theory and doctrine to a specific situation, time and place. Theory and doctrine

are two inputs to strategy; information about intelligence, weather and terrain are among the others.

Field Manual 100–20 of July 1943, which dealt with tactical or theater air doctrine, was central to airmen's thinking after the establishment of the USAF in 1947. The Air Force did not, however, publish a broader, formal, basic doctrine until the Korean War was nearly over.[17] *Informal* doctrine, i.e., views that are generally believed and taught within an institution, often continue to be espoused even without formal approval by the head of an organization. Such was the case with doctrine put forward at the Air Corps Tactical School (ACTS) during the 1930s, and with the body of ideas shared by most airmen, including Spaatz, in the immediate postwar period.

The degree to which ACTS and airmen ever since have been obsessed with the strategic mission to the exclusion of all others has usually been exaggerated. Tactical air doctrine was never absent from the curriculum of ACTS, nor was it totally ignored in the era of massive retaliation. But strategic air doctrine has been emphasized from the time of Billy Mitchell's pronouncements through the end of the Cold War, even though bombers played a diminishing role.

The theory and doctrine of ACTS argued that a daylight, precision strategic air attack on an enemy's vital centers (mostly industrial, but also agricultural) could be decisive without the need to first conquer his armies and navies. Airmen contended that a long-range escort fighter was technologically unfeasible and that escorts might be unnecessary altogether. The bomber, they thought, would always get through with acceptable losses, relying only on its own defensive armament and formation tactics to hold attrition to within acceptable bounds. The attacker would find its target and hit it with decisive frequency, its bombs powerful enough to fatally retard the enemy's ability to adapt.[18]

British historian Michael Howard has asserted that doctrine is always wrong. Rather, he whose system is most flexible in its adaptability will tend to win.[19] As commander of the Eighth Air Force, Carl Spaatz, and his successor Ira Eaker, learned this painful lesson in the AAF strategic campaign against Germany.[20] Although they enjoyed a preponderance of force, the Mitchell-Douhet promise of quick results was not forthcoming. The small bombs were far less damaging to industrial machinery and installations than the prewar thinkers had believed. Furthermore, the resilience of the enemy was far greater than had been imagined, and the weather was a much more severe inhibition than had been anticipated. The increased use of radar bombing made the precision attacks on vital targets of the USAAF difficult to distinguish from the area bombing of the RAF. In Japan in the spring of 1945, as a matter of deliberate policy, the AAF went to incendiary area raids on cities, using the argument that Japanese industry subcontracted out its work to so many small operators in neighborhoods that it was necessary to attack a whole city to reach it.

The greatest fire raid of all was on Tokyo on the night of March 9/10, 1945.[21]

Although, as noted, an authoritative doctrinal manual was not published until 1943, the basic notion that air power could have decisive effects on an enemy without engaging his army and navy through the use of precision attacks against his vital targets, principally the nodes of his industrial web, remained the main line of thought. The need for escorts came to be acknowledged, although their practicality diminished as bomber range increased.[22] With the employment of the B–29 in 1945, for example, the P–51 escort could not make the 3,000-mile round trip to Tokyo, and 6,000 marines died to capture a base at Iwo Jima halfway to the target.

The postwar Spaatz Board recognized that overseas bases would be needed in the absence of intercontinental strategic bombers. Relying on forward bases located in host countries would induce vulnerabilities and delays, and also play into the hands of the air force's bureaucratic rivals in the Navy who argued that carriers served as mobile bases.[23] A true intercontinental strategic bombing capability would prevent the Navy's advantage and conserve funds for aircraft and weapons development.

Notwithstanding that postwar Air Force leaders planned to hit targets deep in the Eurasian heartland, where the capture of a station halfway to the target was out of the question, they kept escort fighters in the strategic air forces until the mid-1950s.[24] At some level, the problem was recognized in developmental programs for parasite fighters that could ride in the bomb bays of B–36s to be discharged in the target areas to face the enemy interceptor threats. Efforts were also made to develop means of towing F–84s or tanker gliders, but the solution was high-speed B–47s and B–52s that would condemn the interceptors to face guns from the tail position.[25]

Initially it appeared that nuclear energy might come under the control of the United Nations, a solution that some military men thought desirable.[26] Many suspected that no American President would ever again order the dropping of an atomic weapon. Also, some airmen assumed that any atom bomb carrier that was ordered into hostilities would have to be accompanied by a flock of protecting B–29s because escorts would never be capable of flying deep into the interior of the USSR. Too, the Spaatz Board assumed that nuclear bombs would forever be scarce and many vital targets not valuable enough to warrant their expenditure. Finally, Ira Eaker expressed the view that the Air Force's sole nuclear-capable bombardment group, the 509th at Roswell, New Mexico, should not be named "atomic" lest Congress assume that the Air Force only needed one bombardment group. Instead, all heavy bombardment groups should be dual-capable. All these factors were not expected to constrain the use of atomic weaponry to the exclusion of all others, so airmen did not then think that major changes in their force structure were in order.[27]

The AAF's initial proposal for seventy groups was predicated on the

assumption that a "balanced" force to include tactical air formations would be maintained in the peace to come. However, a demobilization that was more like an implosion than a drawdown soon drove the AAF far below that figure. The seventy groups were to have been sustained by about 400,000 uniformed personnel, but by the spring of 1947 numbers hovered around 300,000, and few units could be considered combat-ready.

Just as the Air Corps' priorities in austere budgetary times caused it to focus on the heavy bomber, in the postwar period funds were devoted primarily to atomic striking power, with very little for the lesser priorities. For the first five postwar years, the air arm became increasingly specialized in strategic bombing rather than building a force capable of a more general and flexible kind of air power.[28] As early as June 1946, General Spaatz argued in a letter prepared for Bernard Baruch that the "hysterical demobilization" had made us ever more dependent upon atomic weapons for our security. He also doubted that any treaty could prevent their use if a war were to come. Spaatz asserted that the goal, therefore, should be the abolition of war, not increasing the weapons with which it would be fought. Nonetheless, military power remained an essential basis for diplomacy, and the atom bomb had become an essential component of American power. Spaatz closed his letter: "Fear of the terrible consequences of another war may prove to be the major deterrent against war itself; such a full appreciation of the horrors of modern warfare must be instilled in the minds of all peoples and their governments."[29]

Spaatz' affirmation of the deterrent effect of atomic warfare was congruent with Presidents Truman's and Eisenhower's concern to balance the budget and reduce taxes. The public too came to believe that America's security interests lay with atomic bombs and strategic air power, and with cutting the Army, Navy, Marine Corps and tactical air power. While Spaatz was chief, however, his strategic bombing forces were hardly ready to effectively deliver the dozen or so atomic bombs in the stockpile, and compartmentalization of nuclear information prevented training any assembly and loading teams. The prompt launching of an atomic counteroffensive was a daunting prospect.[30]

Spaatz did not offer definitive views about air power doctrine at this time. He had been a fighter pilot in World War I, with three kills in air-to-air combat to his credit.[31] He was the commander of the 1st Pursuit Group in the 1920s when it was the *only* fighter organization in the air arm. He ran the Northwest African Air Force in 1943, whose combat experience resulted in the codification of tactical air doctrine. He was never part of a bomber crew, nor had his principal assistant and successor, Hoyt Vandenberg, ever been on a bomber crew. Nonetheless, at that time airmen tended not to identify strongly with a single command such as the Strategic or the Tactical Air Command, as came to be the case in the 1950s and later.

In the immediate postwar period, airmen narrowed their focus ever more on strategic bombing and its employment doctrine. The viciousness of the uni-

fication fight underscored that view because a separate air force could only be justified on the basis of an independent or autonomous mission, not support roles for surface forces. So Spaatz and other senior airmen offered little resistance when technology, finances and the external threat pushed American national security toward strategic nuclear attack.

Organizational Influences

Carl Spaatz was recruited for the AAF commanding general's job, over his reluctance, for the explicit purpose of seeing the AAF to independence.[32] Although airmen got their autonomous Air Force, and although so-called unification was enacted into law, Arnold was correct in that the outcome left intact the power of three separate services, much as the Navy desired. Thus, the defense reorganization that occurred in 1947 did not result in a doctrinal revolution in the air arm or the other services and can best be explained in terms of bureaucratic negotiations and compromises. Within the air arm itself, however, the administrative structure responded to changing technology and long-held doctrinal beliefs.

In his speaking and writing, Spaatz maintained that the United States required a force in-being because America's allies could no longer be counted upon to provide the time needed to mobilize a great army. His perspective prevailed. After World War II, the air arm's strength never dropped below 300,000, and usually it remained much higher. Throughout Spaatz' tenure, the Strategic Air Command, the main striking force, had yet to reach the peak it later achieved, so that Spaatz claimed he had but two combat-ready groups at the end of 1946.[33] Leaders in the Army and the Air Force believed that national security should be based upon air power and nuclear weapons and upon standing forces. In the Navy, the transition was gradual from battleships to carriers as the capital ships, but by 1945 naval aviators were breaking into the upper ranks of the service. Though the battleship came to play a supporting role to the aircraft carrier, the mission of those combined forces in the fleet still was to command the sea. The absence of a foreign naval threat and the powerful political pressures for funding reductions made conflict between the Air Force and the Navy almost inevitable.

In public, Spaatz usually gave at least lip service to the need for a Navy to capture and support the forward bases from which air forces would mount the strategic air offensive.[34] But since the 1920s, airmen had argued that once aircraft of sufficient range were developed, aircraft carriers would follow the battleships to the "mothball fleet" and then to the scrapyard. In the immediate postwar period, Spaatz' staff worked hard to develop that range through the B–36 and B–52 programs, as well as through aerial refueling. Not surprisingly, the B–36 program in particular came in for intense attack by naval officers.

Airmen were convinced that long-range bombing had proved itself over Germany and Japan, and the atom bomb only further enhanced the force of

that doctrine. Furthermore, for some time airmen had argued that most combat air power should be under a single operational command. During the combat in Africa, France and even the Far East, air units had not been organized in unified way, or geographically, but rather functionally. Eighth Air Force, for example, had an VIII Bomber Command, VIII Fighter Command and so on, all functioning in strategic bombing. Ninth Air Force in Europe, similarly had its own bomber command, but its function was tactical support. Historian Herman Wolk maintains that airmen agreed to a dedicated tactical air command for the support of the Army in order to win Eisenhower's support in the battle for a separate air force.[35] Spaatz later asserted that the decision arose from discussions between him and Eisenhower and that it was not a payoff.[36]

In any case, after the war, instead of placing all AAF combat power under one command, Spaatz abolished the Continental Air Forces and created three different combat air organizations—the Strategic Air Command, the Air Defense Command, and the Tactical Air Command. After the 1947 reorganization, that structure remained. In the logistical world, it had long been thought that the combination of supply and research and development into the same organization would result in the inhibition of technological advances. Procurement accounts had much higher dollar value than research and development programs. In consequence, it was argued, the supply function would overwhelm efforts at innovation, and research and development would stagnate. Nonetheless, both functions were lodged in the Air Materiel Command beyond the end of Spaatz' tenure.[37]

Not only was the technology of the atom bomb an engine for controversy and ill-will within the Defense Department, the coming of guided missiles set off bureaucratic battles among factions in the AAF and then the USAF, and between the services. The AAF thought of missiles as pilotless aircraft; the Army Ground Forces considered missiles to be an extension of artillery. The Navy too was soon in the act.

In the fall of 1944, Lt. Gen. Joseph T. McNarney, Marshall's deputy but himself an AAF officer, issued the McNarney Directive that put the AAF in charge of all missiles launched from aircraft and all ground-launched weapons dependent upon aerodynamic lift. Ballistic weapons would go to the Army Service Forces Ordnance Department, all assignments being independent of the mode of propulsion.[38]

That arrangement did not last much past the time that Spaatz assumed command. He feared that a continuation of the fragmented approach of the McNarney Directive might play into the hands of the Navy, so that very month he urged centralization of missile development under the AAF. As a result, within the Army, the AAF was assigned the leading role—at least on paper.[39] Yet the Navy had already begun a vigorous missile program, including the development of what is now the Pacific Missile Test Range at Point Mugu,

California,[40] that stimulated further anxiety in the AAF.

Airmen themselves tended to be conservative in regard to the implications of missile technology, as indicated by a 1947 HQ USAF working group that advised the First Aircraft and Weapons Board:

> It is not felt that the guided missile will ever replace the airplane. Rather the guided missile will supplement and aid in the air operations of the future. It is felt that the guided missile, proceeding along one line of development and the aircraft proceeding along a second line of development, will ultimately result in very similar high performance supersonic vehicles.[41]

As it happened, the predictions of the working group actually transpired, not only in the United States but also in the USSR.

In sum, the main drivers of organizational change were probably not the new military technology nor any radical doctrinal departures. Doubtless, the appearance of long-range bombers and the impending arrival of an intercontinental-range airplane plus air refueling, among numerous other things, supported the creation of a separate air force and of a dedicated major air command for strategic attack.

Personalities also affected reorganizations of the Defense Department and the USAF. The steady hand and cool mind of George Marshall was vital to that development. An equal competence and the determination of James Forrestal, along with his clever mind, limited the degree to which Marshall and other Army men realized their goal of centralization. Carl Spaatz had a steadying influence in all of this. He also worked well with the first Air Force Secretary, Stuart Symington, which was conducive to internal peace within the Air Force and a unified external front.[42] Spaatz' disposition enabled him to accept the half-loaf of a separate Air Force among at least three other air forces (Army, Navy and Marine Corps), but without the long-range, land-based, overwater reconnaissance and antisubmarine missions that had been main points of contention.

The Influence of Carl Spaatz

In the individualistic American culture, there is a strong tendency to overemphasize the role of the individual in both good and bad events—no statute of limitations exists among our heroes and demons. T. Harry Williams once divided the officer corps into "Macs" and "Ikes." The Macs, usually associated with Douglas MacArthur and the Pacific and Asian wars, are the more conservative. The Ikes, named for Eisenhower, are most often veterans of the European theater in World War II and are more liberal, or at least less conservative, than the Macs. The Macs are described as less comfortable with civilian control and more given to charismatic leadership styles; the Ikes are at

home with the political leaders and tend more toward persuasive or consensus styles of leadership.

In the context of the Air Force, the commitment to strategic bombing was stronger among the Ikes than the Macs. Likewise, the postwar Air Force looked more to the lessons learned in Europe than in Asia. Spaatz was clearly one of the "Ikes."[43] He was pragmatic and practical, little given to moralizing, and his mode of leadership little resembled that of Douglas MacArthur. Moreover, he fought almost the entire Second World War alongside Ike himself, in the Mediterranean and in Europe. When he took over from Arnold, he brought in the likes of Hoyt Vandenberg and Lauris Norstad and many others whose principal experience had been in the European theater. Vandenberg, his immediate successor, presided over the increasing specialization of the Air Force in strategic air offensive operations. During Eisenhower's presidency, Norstad became the only airman ever to command NATO. After Vandenberg came Nathan Twining, wartime commander of Fifteenth Air Force under Spaatz and generally considered to be a "Bomber Baron." Twining was succeeded by Thomas White and then Curtis LeMay, who got his baptism of fire under Spaatz against Germany, and who became the great antichrist from the anti–strategic bombing perspective.

The influence of Spaatz (and Arnold) in the selection of field commanders and air staff members lasted for at least twenty years after the dawn of the nuclear age. The rule of this group of Bomber Barons was probably not as complete as some have made it, but it was dominant until the Bay of Pigs, and it remained strong thereafter. Spaatz' decision to split the combat power of the AAF and then the USAF into three different major commands was even more long-lasting. That functional organization remained the basic structure of the Air Force until the 1990s when all combat units were gathered again into the Air Combat Command.

Conclusion

The flaws in the pre–World War II strategic bombing theory were diminished by the increasing range of bomber aircraft; the increased deadliness of atomic weapons; and the increasing irrelevance of bombsight accuracy, a result of the overwhelming effects of nuclear weapons. Spaatz and others anticipated early that escorts would no longer be necessary because the speed of jets made them vulnerable only to stern shots whose effects would be limited. Intercontinental missiles with nuclear warheads removed the difficulty of achieving deep penetrations, even in the presence of radar, by reducing the warning time to near zero. Electronic development was on an increasingly steep curve.

Technology was only one of the factors propelling the evolution of air theory and doctrine. In Spaatz' day, strategic air attack assumed the most

prominent role, although other missions were not abandoned. Budgetary concerns increasingly conditioned airmen's thoughts so that, after Spaatz' retirement, the USAF became even more focused on the strategic role.

The debate about the seriousness of the Cold War threat is vigorous now that access to the Soviet archives has increased,[44] but it is certain that the strategic mission fulfilled airmen's bureaucratic interests as well as the logic of international relations and grand strategy.

International relations and military affairs are greatly influenced by personalities. In the short term, at the time of the creation of the National Defense Establishment, Forrestal and the Navy perspective prevailed. In the longer term, the ideas of Truman and the soldiers and airmen who shared them assumed greater importance. Carl Spaatz was effective in representing the airmen's views. His skill at human relations was widely appreciated not only by his fellow service members,[45] but also by some of his most stouthearted adversaries outside the air arm.[46]

It appears that Spaatz was the right man for his time and place. He was better equipped for the task than either his predecessor Arnold or his successor Vandenberg, better also than either of the other Air Force four-star generals, George Kenney and Joseph McNarney. Arnold is famous for his irascibility and impatience. Vandenberg was often viewed as a too rigid air power advocate and, incidentally, too much younger than most of his counterparts. Kenney was a wonderful speaker with a creative imagination, but he was sometimes seen as too quick to shoot from the hip.[47] It is questionable whether senior AAF leaders would have given him widespread support. It is equally doubtful that McNarney would have had the necessary support since he came later to aviation than many others of his rank and had neither the flying nor the combat command experience that Spaatz enjoyed. Spaatz was also the closest to Arnold and Eisenhower, although McNarney was a clear favorite of George Marshall.

In an interview with Secretary Symington, when I commented that Carl Spaatz retired in frustration and disappointment, Symington became irate. He asserted stoutly that I must judge Spaatz' career to be a triumph. Spaatz achieved the main goal after all, the creation of an independent Air Force, the dream of a lifetime. Therefore, according to Symington, Spaatz left the service a happy man.

Whatever sense of achievement or disappointment Spaatz might have felt, the establishment of the USAF was a limited victory, a comprehensive compromise. There was an Air Force, but not a unified air arm. Each of the other military services retained its own air force. The new Department of Defense proved to be a weak reed to lean upon. The powers of its secretary were so constrained that only after the passage of nearly a half century did the Defense Department begin to approach what had been envisioned by Marshall, Eisenhower and Spaatz—and Mitchell long before them.

As to the Revolution in Military Affairs, there is a strong tendency for people to think that their own generation is the most successful. We are giants who walk in the land. Those who preceded us were old-fashioned pygmies; those who follow are naïve pygmies. Our own times are unique, somehow tougher and more modern than all that has passed. But Carl Spaatz' experiences at the dawn of the nuclear age should instill some caution about the notion that America is currently enjoying a unique Revolution in Military Affairs. For the first time in history, the technology of Spaatz' era promised immediate mass destruction across the globe. Military thought since the nineteenth century has held that it might be possible one day to leap over the enemy's armies to destroy the basic sources of his strength, almost instantly and at much lower cost than ever before. In Spaatz' day that prospect came to be taken seriously by politically significant numbers of the American people and their leaders. The technology and doctrinal thought of that time resulted in a new arrangement of military forces that was a major evolution, if not a revolution. The creation of a unified Military Establishment that aspired to become a true Department of Defense and a third autonomous service whose principal function was the conduct of the strategic air offensive and the maintenance of the threat in order to deter a third world war should rightly be seen as momentous events in American military affairs.

Notes

1. I.B. Holley, Jr., *Ideas and Weapons: Exploitation of the Aerial Weapon by the United States during World War* I (New Haven, Conn.:Yale University Press, 1953; Washington, D.C.: Office of Air Force History, 1983, 1997), 19, anticipates current writings on the Revolution in Military Affairs by analyzing the United States' adaptation of doctrine and organization (or failure to adapt) to accommodate the coming of aircraft into the First World War.

2. Two books have been written on Spaatz, my own *Master of Airpower* (Novato, Calif.: Presidio, 1988) and Richard Davis' *Carl A. Spaatz and the Air War in Europe* (Washington, D.C.: Center for Air Force History, 1993).

3. A leading authority on the Finletter and Brewster Boards is Donald Edward Wilson, "The History of President Truman's Air Policy Commission and Its Influence on Air Policy, 1947–1949," unpublished Ph.D. dissertation, University of Denver, 1978.

4. Daniel R. Mortensen, *A Pattern for Joint Operations: World War II Close Air Support North Africa* (Washington, D.C.: Office of Air Force History and U.S. Army Center for Military History, 1987), 47–83.

5. John T. Greenwood, "The Emergence of Postwar Strategic Air Force, 1945–1953," in Alfred F. Hurley and Robert C. Ehrhart, eds. (Washington: Office of Air Force History and the United States Air Force Academy, 1979), 218.

6. "Summary Minutes, First Meeting of the U.S. Air Force Aircraft and Weapons Board, 19–22 August 1947," in Box 181, Record Group (RG) 341, National Archives, College Park, Md. (NA II), gives a rather good summary of the attitudes of the Air Force Establishment at the birth of the USAF, still the ideal being a "balanced air force" with the emphasis on the strategic air attack mission; see also Lt. Gen. Ira C. Eaker, "The Army Air Forces, Its Status, Plans and Policies," draft speech, delivered at the National War

College, Washington, D.C., Jun 5, 1947, for General Spaatz, Box 286, Spaatz Papers, Manuscript Division, Library of Congress (LOC), Washington, D.C., 3–4, which explained at that moment there were in-being elements of eight heavy bomber groups, but there were three light bomber, two tactical reconnaissance and six troop carrier groups—more groups still devoted to tactical than to strategic use.

7. Holley's *Ideas and Weapons* in its original 1953 version expressed the essence of the definition of a Revolution in Military Affairs. Adm. William A. Owens, in his "The American Revolution in Military Affairs," *Joint Forces Quarterly*, Winter 1995–1996, 37–38, provides one sample in a sea of current articles on the subject. Others are James R. FitzSimmonds and Jan M. van Tol, "Revolutions in Military Affairs," *Joint Forces Quarterly*, Spring 1994, 24–31, and Henry C. Bartlett *et al.,* "Force Planning, Military Revolutions, and the Tyranny of Technology*," Strategic Review* XXIV (Fall 1996): 28. R.L. DiNardo and Daniel J. Hughes, "Some Cautionary Thoughts on Information Warfare," *Airpower Journal* IX (Winter 1995): 69–79, provide a current skeptical view.

8. Donald MacKenzie's "Technology and the Arms Race," *International Security* 14 (Summer 1989) 161–176, is a review article on Matthew Evangelista's *Innovation and the Arms Race: How the United States and the Soviet Union Develop New Military Technologies* which discusses these things using the ex-Soviet system of command (top-down) research and development which can get things done rapidly, and the U.S. system of a more spontaneous (bottom-up) method which develops a greater variety of new options depending on ideas from the field to a large extent; see also Aaron L. Friedberg, "Science, the Cold War, and the American State," *Diplomatic History* 20 (Winter 1996): 107–118.

9. Rprt, Maj. Carl A. Spaatz to Chief, U.S. Army Air Corps, "Report of the Flight of the *Question Mark*," Jan 1–7, 1929, Box 110, Spaatz Papers, LOC. Spaatz speculates not only that the refueling technique permits longer ranges for bomber missions and other combat aircraft as well, but also on the improvement of ranges and speeds for commercial air traffic. For a contemporary analysis, see Charles F. McReynolds, "The Refueling Flight of the *Question Mark,*" *Aviation* 26 (Jan 19, 1929): 158–162, in which the meaning for bombing flights and for commercial aviation is mentioned.

10. Mark D. Mandeles, draft paper, "Jean de Bloch and the Future of War," paper prepared for delivery to the Military Classics Seminar, Jan 16, 1990 (rev. 1996), 53, 98.

11. Thomas Julian, draft article, "The Origins of Air Refueling in the United States Air Force," n.d., copy in the possession of the author.

12. Thomas A. Keaney and Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, Md.: Naval Institute, 1995), 194.

13. Carl A. Spaatz, "Air Power in the Atomic Age: The Fantastic and Appalling Possibilities of Future Warmaking," *Colliers,* Dec 8, 1945, 11–14 *passim*, copy of draft manuscript in Box 269, Spaatz Papers, LOC.

14. Spaatz, "Air Power in the Atomic Age"; Rprt, Secretary General of the Air Board to Assistant Chief of the Air Staff–13, "Army Air Forces Concept of Strategic Bombing," Jun 7, 1946, Box 276, Spaatz Papers, LOC. In this report, Maj. Gen. Hugh Knerr dwells upon the need for force in-being, the lack of time for mobilization, and the deadliness of an atomic armed surprise attack. Among the places Spaatz and the other leaders referred to one-way missions was his "Future Use of Air Power" draft speech, Wings Club Dinner, Waldorf Astoria, New York, Mar 19, 1946, Box 269, Spaatz Papers, LOC. In 1947 LeMay, uncertain of the other measures of reaching the target, was still speaking of one-way trips. Mandeles, "Future of War," 94.

15. Carl A. Spaatz, "Spaatz Board Report," draft, Oct 23, 1945, Box 22, Spaatz Papers, LOC.

16. *Ibid.;* David MacIsaac, Working Paper No. 8, Wilson Center, Smithsonian Institution, Washington, D.C., "The Air Force and Strategic Thought, 1945–1951," Jun 21, 1979. The Joint Strategic Survey Committee shared many of the same assumptions that same Fall. Walton S. Moody, *Building a Strategic Air Force* (Washington, D.C.: Air Force History & Museums Program, 1996), 42.

17. Robert Frank Futrell, *Ideas, Concepts, Doctrine:Basic Thinking in the United States Air Force, 1907–1960*, Vol. I (Maxwell AFB, Ala.: Air University, 1971, 1989), 5, identifies AFM 1–2 dated Apr 1, 1953.

18. Robert T. Finney, *History of the Air Corps Tactical School, 1920–1940* (Maxwell AFB, Ala.: Air University Research Studies Institute, 1955; Washington, D.C.: Center for Air Force History, 1992).

19. Michael Howard, "Military Science in an Age of Peace," Chesney Memorial Gold Medal Lecture, Oct 3, 1973, reprinted in *Journal of the Royal United Services Institute* 119 (Mar 1974): 3–11.

20. A huge and growing literature exists on this subject, a fine recent source being Alan J. Levine, *The Strategic Bombing of Germany, 1940–1945* (Westport, Conn.: Praeger, 1992). Other recent good sources include Conrad C. Crane, *Bombs, Cities and Civilians* (Lawrence: University Press of Kansas, 1993), and Stephen L. McFarland and Wesley Phillips Newton, *To Command the Sky: The Battle for Air Superiority over Germany, 1942–1944* (Washington, D.C.: Smithsonian Institution, 1991).

21. Here again the literature is vast and growing, stimulated especially over the fiftieth anniversary of Hiroshima and the controversy over the commemorative display that had been planned for the Smithsonian Air and Space Museum. Michael Sherry's *The Rise of American Air Power: The Creation of Armageddon* (New Haven, Conn.: Yale, 1987) is so well researched and has attracted so much attention that the scholar cannot ignore it-—notwithstanding that I do not at all agree with its approach and style. Another recent book sure to stimulate a similar controversy is Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, N.Y.: Cornell, 1996), so much so that an upcoming issue of *Security Studies* is scheduled to be almost entirely devoted to various review-essays on that book. It contains chapters on both Germany and Japan.

22. Carl A. Spaatz to Henry H. Arnold, Dec 3, 1944, Box 58, Spaatz Papers, LOC, in which he remarks "When it is possible to build a bomber at terminal speeds, the necessity for the escort fighter may have passed."

23. "Spaatz Board Report"; Mandeles, "Future of War," 87.

24. Gen. Carl Spaatz, "Strategic Air Power: Fulfillment of a Concept," *Foreign Affairs* 24 (Apr 1946): 385–396, suggests by its title that the essence of the preatomic theory and doctrine remained sound. The article gives a concise and readable summary of the attitudes common on the Air Staff and those of Spaatz himself.

25. As it happened, the B–47s and B–52s never really had to fight their way through an aircraft defense. However, one scrap of information that tends to support that theory is that all the kills of B–52s in Linebacker II (15 aircraft brought down) were accomplished by ground-based air defenses. At least two MiGs were indeed shot down by the tail guns of B–52s, and had they been bristling with weapons in other places, as was the B–36, it probably would not have done any good—it would have only reduced the bombload. See Brig. Gen. James R. McCarthy and Lt. Col. George B. Allison, *Linebacker II: A View from the Rock* (Maxwell AFB, Ala.: Airpower Research Institute, 1979; Washington, D.C.: Office of Air Force History, 1985), 116, on the MiG kills.

26. The Joint Strategic Survey Committee report to the Joint Chiefs of Staff, "Guidance as to the Military Implications of a United Nations Commission on Atomic Energy" (Jan12, 1946, Box 178, RG 341, NA II) recommended that the JCS look favorably on international control in the hope of avoiding a nuclear arms race, and because the most vulnerable targets for atomic weapons were advanced industrial countries of which the United States was one.

27. Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (Bloomington: Indiana University Press, 1973), 373; "Spaatz Board," 5; Phillip S. Meilinger, *Vandenberg: The Life of a General* (Bloomington: Indiana University Press, 1989), 63–65; Herman S. Wolk, "Men Who Made the Air Force," *Air University Review* XXIII (Sep–Oct 1972): 11.

28. Harry R. Borowski, *A Hollow Threat: Strategic Air Power and Containment Before*

Korea (Westport, Conn.: Greenwood, 1982), 4. This was shown in that by 1947 the technical plans for the B–52 did not include a requirement for the carriage of conventional bombs. Mandeles, "Future of War," 87.

29. Memo, Carl A. Spaatz to Secretary, Joint Chiefs of Staff, "Reply to Mr. Baruch's Letter of 24 May 1946," Jun 10, 1946, Box 18, RG 341, NA II.

30. Borowski, *Hollow Threat*; Spaatz to Lt. Gen. Lewis H. Brereton, Chairman of the Military Liaison Committee to the Atomic Energy Commission, "Information on Military Applications of Atomic Energy," Oct 7, 1947, and "Delivery of Atomic Weapons to the Armed Forces," Oct 31, 1947, both in Box 256, Spaatz Papers, LOC. The Spaatz correspondence provides but two examples among many of efforts to overcome the problem.

31. He himself always remembered it as three, and it is cited that way in many sources although the official Air Force tally gives him but two kills.

32. According to Gen. William McKee, Spaatz did not want to be Chief of Staff of the Air Force either, but Secretary Symington leaned on him, and Spaatz consented with the provision that he would walk out at the end of a year. Intvw, Gen. William McKee with David R. Mets, Washington, D.C., Mar 23, 1983.

33. Borowski, *Hollow Threat*. See especially p. 48 for reference to two combat-ready groups.

34. "Spaatz Board Report," 5, cites need for outlying bases. In his *Colliers* article of December 1945 (p. 84), Spaatz, throws in the notion that the Army and Navy are still needed almost as an afterthought Four months later, in his *Foreign Affairs* article ("Fulfillment of a Concept") he suggests that the air offensive might end the war before the Army and Navy had time to engage the enemy.

35. Wolk, "Men Who Made the Air Force," 14.

36. Intvw, Gen. Carl A. Spaatz with Brig. Gen. Noel Parrish and Dr. Alfred Goldberg, USAF Oral History Program No. K239.0512–754, USAF Historical Research Agency (HRA), Maxwell AFB, Ala., 5.

37. Herman S. Wolk, *Planning and Organizing the Postwar Air Force, 1943–1947* (Washington, D.C.: Office of Air Force History, 1984), 130, cites Spaatz as saying the fragmentation of combat air power was not done under pressure, but this source still offers up Wolk's earlier interpretation as a possible explanation as well.The year after Spaatz retired, a committee of scientists headed by Louis N. Ridenour made the formal recommendation that research and development be separated into its own command specializing in the work. Albert E. Misenko and Philip H. Pollock, *Engineering History, 1917–1978, McCook Field to the Aeronautical Systems Division*, 4th ed. (Wright-Patterson AFB, Ohio: Aeronautical Systems Division History Office, 1979), xvii; Briefing, Maj. Gen. R.C. Coupland to the Scientific Advisory Board, "The Future of Armament Research and Development," Jul 12, 1949, on file at Air Force Development Test Center History Office Eglin AFB, Fla.; Jacob Neufeld, ed., Reflections on *Research and Development in the United States Air Force: An Interview with General Bernard A. Schriever and Generals Samuel C. Phillips, Robert T. Marsh, and James H. Doolittle, and Dr. Ivan A. Getting* (Washington, D.C.: Center for Air Force History, 1993), esp. General Schriever, pp. 37–39.

38. Jacob Neufeld, *The Development of Ballistic Missiles in the United States Air Force, 1945–1960* (Washington, D.C.: Office of Air Force History, 1990), 17–19; Kenneth P. Werrell, *The Evolution of the Cruise Missile* (Maxwell AFB, Ala.: Air University Press, 1985), 79–81.

39. Neufeld, *Ballistic Missiles*, 20–23. For the Air Force establishment's view on missiles at the outset, see U.S. Air Force, Deputy Chief of Staff (DCS) Operations, Guided Missiles Group, "Item 5, Guided Missiles Program," copy in Rprt, First Aircraft and Weapons Board, DCS Development, n.d. [Aug 1947], Box 182, RG 341, NA II, which did not see a possible defense against ballistic missiles, but which anticipated all the types of missiles that have come into use by 1997. At that point, though, the highest developmental priority was for air-to-surface and air-to-air missiles that would enhance the potential

of bomber aircraft.

40. J.D. Gerrard-Gough and Albert B. Christman, *History of the Naval Weapons Center: China Lake, California*, Vol. 2, *The Grand Experiment at Inyokern* (Washington, D.C.: Naval History Division, 1978), 179.

41. DCS Operations, "Guided Missiles Program," 4.

42. McKee intvw, Mar 23, 1983.

43. Spaatz was, in fact, the grand marshal of Eisenhower's first inaugural parade.

44. Mark K. Kauppi, "Strategic Beliefs and Intelligence: Dominoes and Bandwagons in the Early Cold War," *Security Studies* 4 (Autumn 1994): 4–39; Mary N. Hampton, "NATO at the Creation," *Security Studies* 4 (Spring 1995): 610–656; William C. Wohlforth, "New Evidence on Moscow's Cold War: Ambiguity in Search of Theory," *Diplomatic History* 21 (Spring 1997): 229–242; Beisner, "Patterns of Peril," pp. 321–355; Robert C. Tucker, "The Cold War in Stalin's Time: What the New Sources Reveal," *Diplomatic History* 21 (Spring 1997): 273–281.

45. McKee intvw, 23 March 1983; Intvw, W. Stuart Symington with David R. Mets, Aug 4, 1982.

46. Stephen Jurika, Jr., ed., *From Pearl Harbor to Vietnam: The Memoirs of Admiral Arthur W. Radford* (Stanford Calif.: Stanford University, 1980), 82, 115; Intvw, Adm. Arleigh Burke with David R. Mets, Fort Myer, Va., Mar 25, 1983.

47. Borowski, *Hollow Threat*, 140.

The War from above the Clouds: B–52 Operations during the Second Indochina War And the Effects of the Air War on Air Power Doctrine

William P. Head

Introduction

Before discussing air power doctrine, it is important to define the term. In one of the most recent statements on the subject, Col. Dennis M. Drew in his paper "Vietnam, 'Wars of the Third Kind' and Air Force Doctrine," asserts that doctrine is basically a "framework for understanding how to apply military power. It is what history has taught us works in war, as well as what does not."[1] The 1992 Air Force Basic Aerospace Doctrine Manual includes a historical perspective, defining Air Force doctrine as "what we have learned about aerospace power and its application since the dawn of powered flight." In the widest sense, doctrine is "a broad conceptual basis for our understanding of war, human nature, and aerospace power," which is "the starting point for solving contemporary problems."[2] Drew cautions that "although doctrine may not fulfill all of the requirements of a formal academic definition of theory, it fulfills most of the same functions and in that sense forms a 'poor man's' theory of air power."[3]

Students of military history and United States Air Force officers are familiar with Giulio Douhet's theories of strategic bombing attacks on vital centers in the enemy's heartland. Also, Billy Mitchell's vision of vast fleets of bombers and of a separate and equal strategic air arm that could conclude wars with little or no support from land armies is well known. The ideas of these early air power pioneers and the efforts of World War II airmen, such as Hap Arnold and Carl Spaatz, formed the basis of the argument for the creation of a separate U.S. Air Force.[4]

In 1965, when U.S. air power entered the Second Indochina War, these theories underlay Air Force strategy and doctrine. Official doctrine that espoused them appeared in 1953, with modifications made to the manual in 1954, 1955, and 1959. Even though the first manual appeared on the heels of the Korean conflict, and a growing number of brushfire conflicts were unfold-

ing in the developing former colonial nations of Africa, Asia, and Latin America, all of these basic doctrine manuals essentially ignored any direct mention of insurgency conflict or the broader concepts of limited war.[5] As Colonel Drew contends, "In each case it was as if the struggles of Southeast Asia did not exist and, for the most part, as if the Korean War had not happened. It took till 1955 for the official doctrine to even acknowledge the broader concepts of limited war."[6]

Even at the levels below Air Force Manual (AFM) 1–2, there was a similar lack of attention paid to insurgency or counterinsurgency. Caught up in the Cold War, airmen were all but totally focused on nuclear strategic conflicts with the Soviet Union and fulfilling their role as a component of America's nuclear triad. One notable exception appeared in 1953 in the form of AFM 1–3, *Theater Air Operations Doctrine Manual.* It mentioned, for the first time, what it called "special operations." Although using the 1950s catch phrase for insurgency conflict, it defined special operations as "inserting agents behind enemy lines, supplying partisans, and delivering propaganda." The 1954 revision continued in this vein.[7]

Air Power Enters the War in Vietnam

Early in the Cold War the U.S. Air Force (USAF), through its policy, doctrine, and weapons development, focused on its strategic role of delivering a nuclear strike against the Soviet Union (USSR) or People's Republic of China (PRC). During the 1950s and 1960s the Boeing Corporation built the B–52 Stratofortress for this mission. Although it was deployed to serve the national security policy of mutually assured destruction (MAD), mutual nuclear force buildups, and U.S. conventional force reductions, as then USAF Chief of Staff Gen. Ronald R. Fogleman noted, "The harsh realities of Korea and Vietnam showed us the limits of nuclear deterrence and revitalized our interest in, and support for, conventional capabilities."[8]

During the Kennedy years Army and Navy factions in the Joint Chiefs of Staff (JCS) argued that the future would see more limited wars. Therefore U.S. military forces became more conventional, and budgets of the early 1960s did not provide for a new bomber or even the production of more B–52s. They were supplanted instead by Minuteman and Polaris missiles as well as tactical weapons such as the F–4 Phantom. The XB/YB–70 Valkyrie supersonic bomber program, though a pet project of USAF Chief of Staff Curtis LeMay (1961–1965), ended because it could not carry such things as the Skybolt air-to-ground missile. Even the former first Secretary of the Air Force, and by then senator from Missouri, W. Stuart Symington, disapproved of the bomber.[9]

Indeed, the entire tenor of U.S. defense policy changed in the transition from the Eisenhower to the Kennedy administrations. This shift culminated when the new President met with British Prime Minister Harold MacMillan in

Nassau in December of 1962. In what became known as the Nassau Communiqué the two leaders concluded that there was a need to reverse the atomic "sword" and conventional "shield" strategy. In addition to a nuclear shield, they agreed on the importance of a nonnuclear sword.[10]

In short, the U.S. defense policy based on massed manned bomber retaliation against the USSR would be replaced by a buildup of conventional weapons and forces to combat brushfire wars in the former colonial and developing nations of the world. With the Cuban missile crisis fresh in everyone's mind, President Kennedy was determined never again to be left in a situation where he had to commit all or nothing. Starting a nuclear war over Cuba had nearly occurred because the United States had placed all its military eggs in the single basket of manned bombers. Kennedy now moved toward a future in which the United States would be capable of a measured and flexible response to such confrontations.[11]

It was a change that did not sit well with most air power advocates. Gen. Curtis LeMay, USAF Chief of Staff and father of the Strategic Air Command, openly expressed doubt about dependence on ICBMs at the expense of funding for the B–70 program.[12] John Loosbrod, editor of *Air Force/Space Digest*, went so far as to declare that the "doctrine of nuclear deterrence is being replaced by a doctrine of nuclear stalemate. The strategic umbrella, under the shelter of which major Soviet aggression has been deterred or repulsed at many times and in many places since the end of World War II, is being replaced by a strategic ceiling—rigid, immovable, and possibly brittle."[13]

The policy for which the B–52 had been built and deployed, nuclear deterrence, had begun to change as early as the Defense Reorganization Act of 1958, which declared that "the day of the separate ground, sea, and air warfare was gone forever." Indeed, the change in Air Force thinking during the 1960s under the able leadership of Secretary of the Air Force Eugene M. Zuckert eventually led to the creation of radically new basic doctrine. Instead of the 1950s habit of simply changing words and updating catch phrases, the 1964 basic doctrine reflected a new centralized defense structure and a call for flexibility in the Air Force.[14]

Even as the policy debate continued, the U.S. defense establishment was drawn deeper and deeper into the growing war in Southeast Asia. While the Air Force had concentrated on bombers and its strategic mission throughout the late 1950s and wrestled with changes in its roles, missions, and doctrine in the early 1960s, Presidents Dwight D. Eisenhower, John F. Kennedy, and Lyndon Baines Johnson continued the buildup of material support and troop commitments to the U.S.-supported anticommunist regime in South Vietnam, headed at first by Ngo Dien Diem.[15]

On November 1, 1964, southern guerrillas, known as Vietcong (VC), attacked the Bien Hoa Air Base just outside Saigon, destroying six B–57s and killing five U.S. Air Force personnel. President Johnson was outraged and

wanted immediate retaliation. Air Force leaders therefore recommended a massive B–52 raid on the Phuc Yen MiG-capable airfield just outside Hanoi. However, the event coming as it did just before the 1964 election, the President decided against a counterattack but asked for a postelection report in order to assess his options.[16]

On November 11, 1964, Assistant Secretary of Defense John T. McNaughton and an advisory team drafted a report entitled "Action for South Vietnam" that presented three options. Option A proposed reprisals to punish the North for actions in the South. Option B, which the JCS supported, called for "a full-court press" and a series of "systematic attacks on the North—bombing rapidly, widely, and intensely." The final option called for a "progressive squeeze and talk" policy which combined covert operations in Laos and bombing of North Vietnam. It proposed to begin at a low level of intensity in the panhandle area and move up in both latitude and in the level of violence toward more lucrative targets in Hanoi and Haiphong.[17]

With the final approach yet to be determined, airmen made plans for full-scale intervention using U.S. air power into Southeast Asia. They focused on North Vietnam and the North Vietnamese Army's (NVA's) resupply of the guerrillas in the South along the Ho Chi Minh Trail rather than on the struggle for the hearts and minds of the South Vietnamese population. As noted above, their preferred plan (Option B) called for a campaign of classic and traditional strategic bombing attacks against the so-called 94 Targets List. Planners designed the campaign to destroy, among other things, North Vietnam's "capacity to continue as an industrially viable state."[18]

President Johnson favored the last option because he believed it allowed him to increase pressure until he could reach a negotiated settlement that left pro–United States South Vietnamese to build a secure and independent noncommunist nation. In theory, it meant that the United States could increase the "quotient of pain" at any time using the implied threat of increased military violence to intimidate Hanoi and the southern, communist-dominated National Liberation Front (NLF) into acting as the United States wished. It also avoided a direct confrontation with either the USSR and PRC and provided a consensus within the administration and Congress that President Johnson needed to effect his policies elsewhere. Option C eventually led to Operation Rolling Thunder (1965–1968), the first U.S. air assaults against the North. But Johnson would not allow B–52s to perform these strategic raids. Instead, their execution was left to tactical aircraft flying from land bases in South Vietnam and from U.S. aircraft carriers in the Gulf of Tonkin.[19]

Later, critics of Rolling Thunder and all U.S. strategic bombing efforts would argue that none of the necessary prerequisites for strategic bombing were present. They would contend that the war, at least before March 1972, should have been an effort to pacify the South by defeating a guerrilla insurgency, rather than an attempt to destroy North Vietnam. Besides, North

Vietnam, they would declare, was not a modern industrial state vulnerable to strategic bombing. Thus, none of the plans based on traditional air power operations could have worked. In fact, Rolling Thunder did not work.[20]

As events and competing plans unfolded, President Johnson, almost before he realized it, found himself mired in what he called "a piss ant little war" in Vietnam. U.S. operations soon fell under a policy of a gradual force buildup and limited use of air power. It was a plan that generally ignored the need to stabilize South Vietnam socially, politically, or economically. The approach, coupled with the resilience of the enemy, would be inadequate to secure South Vietnam or defeat the VC or the People's Army of Vietnam.

For Johnson, U.S. air power—traditional air power—became a compromise weapon because it limited the commitment of ground forces, especially reserves, and it racked up spectacular numbers and pictures of destruction. It also satisfied "hawks" like Senators Richard B. Russell and John Stennis, while mollifying moderates and defusing liberals. But the President rightly feared that air attacks too close to China might cause a repeat of the Korean experience which delayed the settlement of that brushfire war for two years. Thus, early U.S. air operations were tightly restricted from fear of a war with the PRC and/or the USSR. Not until the 1970s would President Richard M. Nixon, with friendlier relations with China and the Soviets on the horizon, employ B–52s in a more conventional and effective fashion. But by then the nature of the war had changed; "Vietnamization" was underway and air power was used to cover a U.S. retreat.

Insurgency War and Doctrine in the Early 1960s

As noted earlier, the early 1960s saw a shift in Air Force thinking brought on by the Kennedy administration's new view of international conflict. Moreover, within the inner circles of the Air Force, especially within the newly created Aerospace Doctrine Division of the Office of Deputy Chief of Staff for Plans and Programs, key leaders believed that a new, more clearly stated basic doctrine was needed, as was long-range planning. Instead of the cosmetic changes in doctrine that had been the norm in the 1950s, many, like Maj. Gen. Dale O. Smith and Brig. Gen. Jerry D. Page, who headed doctrinal work within the Air Force, wanted substance and eternal vision incorporated into Air Force doctrine.[21] While this did not mean that insurgency would become a major emphasis, it did mean that airmen needed to define clearly the nature of their job. With the war in Vietnam expanding, any redefinition would have to include a conventional role for air power because the Air Force, albeit reluctantly, would participate in such a war.

The interest in insurgency warfare among airmen was growing in the early 1960s. In 1962, Air Force Chief of Staff General LeMay wrote an article entitled "Air Power in Guerrilla Warfare" that gave recognition to a role for air power in low-intensity conflict. LeMay concluded that "general war poses the

primary military threat to the security of the Free World and it is under the umbrella of strategic superiority that the United States has freedom of maneuver in the lesser forms of conflict."[22] That same year, the newly created Special Air Warfare Center held a symposium on limited war as part of the Air Force Association national convention. The interest generated by this meeting and the growing role of the United States in Vietnam culminated in the publication of a new *Air Force Basic Doctrine* manual in August 1964. Within the manual one brief chapter correctly described both insurgency and the goals of counterinsurgency. It delineated air power's role in both combat and noncombat missions and discussed the "difficulties in interdicting guerrilla lines of supply."[23]

This last concern would need to be addressed again during Commando Hunt operations between 1968 and 1972. Ironically, Commando Hunt would prove the efficacy of the part of the new basic doctrine manual that dealt with interdicting guerrilla lines of supply, as well as compare the relative merits and shortcomings of B–52s in attempting long-range interdiction missions over enemy-held territory, especially over imposing mountains and dense jungle terrain.

But while the new basic doctrine manual of August 1964 included a discussion of insurgency and counterinsurgency, like LeMay's earlier article, its doctrinal emphasis remained, according to Colonel Drew, "where it had been since the advent of nuclear weapons and the creation of the independent Air Force," on the strategic mission.[24]

Arc Light, 1965–1968

Despite the internal debates over doctrine, when the first B–52Fs arrived in Vietnam, Air Force leaders soon found, much to their consternation, the flagship of the strategic air fleet employed in a role contrary to the traditional concepts of strategic projection. The assigned missions were known as Arc Light: high-altitude close air support (CAS) or interdiction operations flown from June 18, 1965, to August 15, 1973, mostly south of the 17th parallel.[25]

The first thirty B–52Fs arrived at Andersen AFB in Guam in February 1965. At one point in March the JCS seriously considered incorporating these long-range bombers in the new Rolling Thunder air campaign composed mostly of Air Force, Navy, and Marine Corps tactical fighters and fighter-bombers attacking targets in North Vietnam. Many Air Force leaders, particularly senior officers of the Strategic Air Command, were displeased that the Buffs were in Southeast Asia at all. They feared too few might be left on alert to fulfill their role as part of America's nuclear triad.[26]

In April, Military Assistance Command, Vietnam (MACV) Commander Gen. William C. Westmoreland implored the JCS to allow him to use B–52s against concentrations of Vietcong troops, enemy bunkers, cave complexes, and regional headquarters.[27] In May the JCS approved his request, and on June

18, 1965, the first B–52 raid took place against VC forces ten miles north of Saigon.[28] After the raid, Army of the Republic of Vietnam (ARVN) reconnaissance teams found no enemy bodies and little material damage because the VC had been tipped off.[29] Furthermore, the raid brought additional embarrassments. One news account compared Arc Light to "a housewife swatting flies with a sledge-hammer."[30]

In spite of the mixed reviews, plans soon went forward for more raids with the B–52s flying fifteen more missions by August. At the same time the thirty bomber flights were replaced by fewer planes flying more missions. Raids no longer had to be preapproved; instead, five free-bomb zones were created—two just north of Saigon, two at the southern tip of South Vietnam, and one just southeast of Da Nang. The smaller raids began on August 26, and by October as few as five planes flew in formations, allowing the 30 B–52Fs to carry out multiple missions.[31]

While refined tactics and more careful security measures brought improved bombing results, it was clear from the outset that the B–52s needed to carry larger payloads. In the late summer of 1965 the Air Force approved the Hi-Density or Big Belly modification program. Ironically, one of the immediate effects of increased B–52 bombloads and sorties was a bomb shortage which also affected Rolling Thunder. Some Air Force officers privately suggested that Army leadership in Vietnam was using Arc Light to undermine what they perceived to be the more important air campaign over North Vietnam. True or not, such sentiment indicated the frustration that was building among airmen at the time.[32]

To compound this tension, in the spring of 1966 President Johnson approved a plan by which the Commander in Chief, Pacific Command (CINCPAC), Adm. U.S.G. Sharp, would determine target designation.[33] Airmen already resented Army ground commanders for putting the greatest strategic bomber ever built into a CAS role, but to have a naval officer select targets seemed unbearable. Of course, target restrictions and lack of target flexibility had hampered air operations in Rolling Thunder. Except for Rolling Thunder, restrictions and target approvals came directly from the White House, degenerating target value and expanding response time.

Although General Westmoreland was pleased with the new Arc Light policies, Gen. William Momyer, Seventh Air Force commander, worried openly that the entire process not only violated the basic concept of a separate strategic and tactical air force run by airmen trained in such combat, but that "Westmoreland's employment of the B–52s as long-range artillery to suppress 'what may or may not be suspected concentrations or supply areas' was questionable and relatively ineffective."[34] Momyer wanted to use the B–52s against specific targets, reserving just two squadrons to fly Arc Light. He believed that B–52s would be more effective in an interdiction role against enemy forces infiltrating South Vietnam along the Ho Chi Minh Trail. Indeed, this kind of

operation would be eventually undertaken from 1968 to 1972 and designated Commando Hunt.

But the basic disagreement over the use of air resources, especially B–52s, had a more fundamental origin. Both generals had a preconceived notion of how best to use aircraft in combat and, as John Schlight argues in his book *The Years of the Offensive*, "there were no quantifiable assessments, each general adopted a position that fit his preconception of the role of air power." Indeed, the United States and her allies did not often send armed reconnaissance teams into enemy areas after air raids to inspect and quantify results. Instead, they eventually opted for mathematical indices and formulas based on what they hoped were best-guess scenarios and assumptions about enemy tactics and methods of combat.[35]

In the end the JCS agreed upon a compromise whereby Momyer became General Westmoreland's MACV air deputy. Under the plan, Momyer assumed operational control, and most Air Force officers, especially from intelligence, were moved from MACV to Seventh Air Force. But much remained the same, and as Momyer noted, "as long as Westmoreland picked the targets the aircraft would continue to be used for close air support."[36]

By the end of 1966 B–52s had flown a total of 5,000 sorties while U.S. "tactical aircraft" had flown 74,000 fixed-wing bombing sorties. By March 1968 B–52 sortie rates had risen to 1,800 per month, so the normal turnover of trained pilots and crews made it difficult for SAC to fulfill its dual mission with rated personnel. As early as January 3, 1967, pilot shortages required a recall of 2,300 older pilots and a compressed program to train 3,200 new pilots per year.[37]

During early 1968, B–52s supported U.S. Marines during the communist siege of Khe Sanh and, in many ways, proved to be a decisive factor in the outcome.[38] President Johnson enthusiastically described the Khe Sanh air campaign as "the most overwhelming, intelligent, and effective use of air power in the history of warfare."[39] He therefore halted U.S. bombing of the North in an effort to start serious peace negotiations, even though Arc Light raids continued. Commando Hunt achieved only marginal success, owed in part to the fact that it began as Rolling Thunder ended, giving the enemy a head start down to the Ho Chi Minh Trail.[40]

Air Force Theory and Doctrine in the Late 1960s and Early 1970s

During the late 1960s only one significant study examined the effects of B–52 antiguerrilla CAS operations on Air Force doctrine. Written by SAC historian Robert Kipp and published in the *Air University Review*, "Counter-insurgency from 30,000 Feet" was primarily an operational look at the subject in which the author touted the effectiveness of the B–52 bomber in countering guerrilla forces. It was not an in-depth analysis that attempted to define new air power theory or expound upon insurgency or limited war and/or air

power's role in such conflicts.[41]

But in March 1967 official doctrine witnessed a dramatic change with the publication of AFM 2–5, *Tactical Air Operations: Special Air Warfare*. This manual offered the first detailed and thoughtful analysis of "special air warfare," defining it as the efforts to "strengthen or create resistance to enemy authority among the people within enemy territory." The authors determined that "military and non-military counterinsurgency actions must be totally intertwined and mutually supporting," and they called for the creation of "country teams" that were to include diplomats, civilian aid personnel, information agents, military assistance advisers, as well as unified military command and military component command personnel. Such teams, they argued, should be used to establish and direct a unified strategy.[42]

In addition, the manual declared that the military component must be able to adjust to each phase of the insurgency conflict, which might range from nation-building to open combat. The manual noted that it was very difficult to obtain totally accurate target identification during combat. Even so, such identification was very important since "military actions by friendly units which kill or injure innocent civilians can lose the loyalty of an otherwise friendly village." According to the authors, "both sides in an insurgency have the same 'center of gravity' [the people] and the objective of both sides is to capture the support of the population."[43]

The study is significant because its tenets ran, and still run, counter to traditional theories of strategic air power. In these Douhetan theories, centers of gravity must include industrial, geographic, and/or military targets. The kind of "special air warfare" described in AFM 2–5 was based on joint operations, not only with military ground forces but with civilian pacification personnel and in-country nationals. To this end therefore, the Air Force would airlift supplies to friendly military forces, bring humanitarian aid to local villages, and provide tactical air and gunship CAS operations. In short, air power would be low and slow, not high and fast. AFM 2–5 would limit the use of strategic weapons like the B–52 and strategic missions. The manual laid out a set of suppositions and air power concepts which, in those days, were at odds with traditional strategic theory and doctrine. Perhaps it was unreasonable to expect airmen to accept them easily.

By September 1971 when the next basic doctrine appeared, the air war in Vietnam was assuming a more traditional posture, and the emphasis had returned slowly and surely to the strategic, if not totally nuclear, focus of 1950s doctrine. To be sure, the Commando Hunt and Menu operations of 1968 through 1972 included numerous strikes by Big Belly B–52s carrying unprecedented bombloads. The big strategic bombers had been one of the main components of these interdiction efforts, especially during Commando Hunts V and VII. The 1971 manual was not a complete reversal of the publications of the mid-1960s, but it was an about-face, a move in a new direction.[44]

Although the 1971 basic doctrine manual did have a final chapter on nonconventional air combat, it did not focus on air power in counterinsurgency. Instead, it focused on the broader subject of Air Force Special Operations. Special Operations, by 1971, had become the latest catch phrase for insurgency conflict and was, in this case, designed to replace the phrase "special air warfare" used in the 1967 AFM 2–5. The 1971 AFM 1–1 introduced yet another term for counterinsurgency, "foreign internal defense." While the examination of "internal defense" covered only one paragraph, it did reiterate the earlier assertion that air operations should be coordinated with civil actions as well as surface force operations in a coordinated military-civilian campaign. The goal was to eliminate the causes of popular discontent and create a sense of national unity. Here again the B–52 was not the optimal weapon. Its primary role, according to AFM 1–1, was to provide a strategic nuclear strike against the Soviet Union.[45]

The War in Vietnam Changes in Nature: Linebacker I

By 1972 President Nixon had withdrawn nearly 500,000 U.S. troops, leaving only 69,000 in Indochina. On March 30, 1972, North Vietnam's senior general, Gen. Vo Nguyen Giap, using the rainy season to avoid air attacks, committed 14 divisions and 26 separate regiments supported by artillery and 200 tanks in a three-pronged invasion of South Vietnam. The Easter Offensive, lasting until September 16, aimed to boost flagging U.S. public support for the war during an election year, counter South Vietnamese successes in rural areas since 1969, and win the war before Nixon's détente policy affected Soviet and Chinese material support of Hanoi. Instead of undercutting Nixon, the offensive gave the President the public support necessary to retaliate.[46]

To counter the invasion Nixon ordered a general buildup of U.S. air power, sending 161 additional B–52s to Vietnam between February 5 and May 23, to create a total force of 210 Buffs, over half of SAC's strategic bomber force. Nixon was ready to "bring the enemy to his knees" by bombing North Vietnam and mining her harbors. Having negotiated closer ties with both Moscow and Peking, he could afford to be bolder with Hanoi.[47]

While most B–52s flew missions in the South to repel the enemy offensive, Nixon decided on a plan of sustained bombing and mining of Haiphong and other Northern harbors. Similar in design to Rolling Thunder, its main force was tactical aircraft using only a few B–52s. Operation Linebacker began on May 10 and officially ended on October 15, 1972. Linebacker I and collateral air operations (April 5–October 23, 1972) dropped 155,548 tons of bombs on North Vietnam—about 25 percent of the tonnage dropped during Operation Rolling Thunder.[48]

B–52s were used most effectively during this period in their Arc Light role. The aircraft flew numerous missions in support of ARVN defenders near cities like Quang Tri. Veteran MACV Army Gen. Bruce Palmer concluded that

the North Vietnamese "appear to have had, in South Vietnam and adjacent areas of Laos, supplies sufficient to see them through their defeats, which were the accomplishments of the South Vietnamese infantry, tactical close air support, and the B–52s."[49]

Indeed, the enemy was mauled by South Vietnamese ground forces and U.S. air power, but in spite of their losses the NVA also made important gains, since they held much of the countryside in South Vietnam and still determined the tempo of the war. In fact, Hanoi had not been defeated but delayed. The NVA slowed the offensive to preserve their remaining 150,000 or so troops in the south, which they planned to rebuild during a new series of negotiations with the United States.[50]

Linebacker II

The 100,000 NVA troops that Hanoi argued had entered South Vietnam before March 31 became one of the greatest impediments to ending U.S. involvement in late 1972. In October, with a draft peace agreement on the table that would have left these troops in place, South Vietnamese President Nguyen Van Thieu demanded, among other things, their withdrawal. Nixon, reluctant to act without Thieu's support, did not sign the draft agreement.[51] However, he did suspend air attacks north of the 20th parallel as an act of good will. Impatient Northern leaders, angered by Nixon's hesitation, did not appreciate the bombing pause. Instead Hanoi condemned the United States for "going back on their word" to sign the agreement.[52]

In November Nixon won a decisive reelection victory, but the Republicans fell well short of a majority in Congress. Now Nixon had to complete negotiations quickly or risk having a Democratic Congress bring about a total and unilateral end to the U.S. commitment to South Vietnam. Nixon was willing to risk the loss of public support to guarantee aid to Saigon once U.S. combat troops were gone. He also wanted to be sure that he and not his principal negotiator, White House foreign policy adviser Henry Kissinger, gained history's credit for the peace. Thus, Nixon pressured Thieu to accept the best deal possible while he pressured Hanoi to accept at least a few of Thieu's revisions.[53]

When Hanoi balked, the President ordered air operations against North Vietnam. Some White House advisers wanted a repeat of Linebacker I, but Nixon decided to aim the campaign at enemy morale, using B–52s to send a message to both North and South Vietnam of U.S. resolve to end the war. Airmen would mount a three-day, around-the-clock, all-weather campaign against Hanoi itself.[54] In a revised plan drawn up in three days in November, SAC planners formulated an inflexible scenario that sent all three waves of bombers on the same route and at the same altitude. Staffers at Eighth Air Force were shocked, fearing an attrition rate as high as eighteen percent.[55] The plan aimed the attack at "rail yards, storage areas, power plants, communica-

tions centers, and airfields located on Hanoi's periphery." It employed fighters, using "smart bombs," to strike targets in populated areas, to avoid civilian casualties. The B–52s would also make night raids to force the populace to seek shelter during sleeping hours, increasing their psychological discomfort.[56]

Although plans changed and tactics evolved during Linebacker II's eleven days, B–52s flew 729 sorties against 34 targets north of the 20th parallel and dropped 15,237 tons of bombs. Air Force and Navy fighters flew 1,216 sorties and dropped 5,000 tons of bombs. They destroyed 383 rolling stocks, made 500 rail cuts leaving rail traffic in total disarray, totally destroyed 191 warehouses around Hanoi and Haiphong, reduced electric power generation from 115,000 kilowatts to 29,000, and reduced POL capacity by three-quarters. The United States lost 15 B–52s; 33 crew members became prisoners of war, and 33 died.[57]

On January 27, 1973, Secretary of State William P. Rogers signed a peace agreement with Hanoi ending America's active participation in the war. The United States could now disengage, in part because of the bombing in the north and also because Hanoi was concerned about its troops in the south that were still vulnerable to U.S. air power.[58] Moreover, Nixon had made progress toward closer relations with the PRC and USSR. Hanoi also knew that Nixon's aims, unlike his predecessor President Johnson's, were limited by both potential congressional constraints and U.S. public opinion.

During the war, U.S. aircraft dropped eight million tons of bombs and expended about $200 billion on aerial operations. Between June 18, 1965, and August 15, 1973, B–52s flew more than 125,000 combat sorties in all but one of the major air campaigns of the war. A total of 31 B–52s were lost, 18 to enemy fire over the North. In spite of their imposing record, B–52s brought the United States no closer to victory than did any other U.S. weapon or tactic since, as a component of policy. If the policy was flawed, so was the weapon.[59]

Effects of Vietnam on Air Force Doctrine since the War

How did the conflict affect Air Force doctrine after the war? One might expect that such a bitter and protracted experience would have had a long-lasting impact on the Air Force's basic theories of air power. However, there was no self-examination like the Army took with the publication of such books as Harry Summers' *On Strategy*. Instead, U.S. airmen have dealt with Vietnam by all but ignoring it in their official theory and doctrine.[60]

In this regard the 1975, 1979, and 1984 basic doctrine manuals continued the 1971 trend, giving "Wars of the Third Kind" only brief mention.[61] During the 1980s and 1990s important new works on air power in these conflicts were written by civilians such as Larry Cable and officers such as Lt. Col. Mark Clodfelter and Col. Dennis Drew, but the 1992 *Basic Aerospace Doctrine* made no reference to any of the analysis or arguments developed by them.[62]

Other insurgencies such as those in Afghanistan, El Salvador, and Nicaragua rekindled interest in Vietnam, and more analytical and balanced examinations of the war appeared. Authors like Cable and Drew made note of the fact that while the catch phrase had changed to "low-intensity conflict," insurgency was still a topic for analysis. But only a few official conferences and publications in the 1980s and 1990s examined air power's role in insurgency conflicts. In December 1990, the Army and Air Force published a pamphlet focused on low-intensity conflict which introduced a new strategy called Internal Defense and Development (IDAD). Two years later, on November 3, 1992, the Air Force introduced an operational-level manual for "Foreign Internal Defense" that examined counterinsurgency within the framework of the IDAD strategy.[63]

The latter publication opened its discussion of IDAD by declaring: "The aerospace role in development and mobilization focuses on administration and nation building." According to the pamphlet's authors, "where ground lines of communication cannot be established and maintained because of terrain or enemy presence, aerial logistic and communication networks carrying information, supplies, and services to civilian elements establish a critical link between the government and the population."[64]

Ultimately, AFM 2–11 concluded that "Aerospace power contributes most effectively when it functions as an integrated, joint component of the overall internal defense effort. It is least effective when employed unilaterally as a substitute for ground maneuver or long-range artillery." The author goes on to assert: "In many instances, air support can be exploited to its greatest advantage by emphasizing surveillance and logistic mobility over firepower." To be sure, "insurgents generally possess no air capabilities. They have no heartland, no fixed industrial facilities, and few interdictable LOC [lines of communication]." The manual concludes that the enemy's "irregular forces are deployed in small units that usually present poor targets for air attack."[65] Although the author does not refer to the historical antecedents, these doctrinal statements seem to have been, at least indirectly, influenced by the U.S. Air Force's experience in the Vietnam War.

Here again can be found an emphasis on joint operations and nonstrategic, nonbomber air power roles. B–52s are not mentioned in this context. In the earlier AFM 1–1 of 1992, the role of intercontinental aircraft is clearly presented as a strategic strike weapon. Even though by 1992 the Soviet threat was all but moot and B–52s had once again been used in their CAS role in the Gulf War, doctrine still declared them to be primarily a nuclear strike weapon. In spite of AFM 2–11's clear statement of air power insurgency doctrine, the manual was never very important to the overall formulation of Air Force doctrine or theory. The ideas were buried in this operational manual that few even knew existed, and still fewer bothered to read.[66]

The great changes in Air Force doctrine in the early 1990s did not con-

cern insurgency but were rather a new look at the strategic role called parallel warfare. Col. John Warden and Lt. Col. David Deptula, authors of the Gulf War air campaign, developed what some experts called the most important new air power theories since Douhet and Mitchell. Their concept of "parallel warfare" and the profound effect of high technology on modern and future wars has garnered most of the attention of official and nonofficial air power thinkers since the Gulf War.[67]

In many ways the Vietnam experience has had little practical impact on actual operations. Air power has been applied in America's most recent operations according to traditional doctrine, except during the Persian Gulf War when tactical fighters and fighter-bombers carrying precision ordnance executed most of the strategic missions while B–52s performed the same tactical role they had performed in Arc Light. In these cases, circumstances dictated the tactics. But will all future air campaigns be fought under such conditions as the Gulf War? The Bosnian intervention already suggests otherwise. Thus, if the United States once again finds itself in a low-intensity insurgency conflict, fighting in jungle terrain and climate, will Air Force doctrine and theory provide airmen with the foundation necessary to successfully prosecute such a war?

The Vietnam conflict has produced one implicit and subtle effect on the selection of senior Air Force officers and thus, indirectly, on doctrine, theory, and policy. While it is difficult to prove that Vietnam was the primary cause, it is interesting to note that before 1973 the Chiefs of Staff of the Air Force (CSAFs) were almost all strategic bomber navigators, advocates, pilots, and/or experts. Since then all of the CSAFs have had little if any bomber expertise and have been far more familiar with tactical air power and alternate nonstrategic nonbomber air power roles.[68] In 1992 SAC, the backbone of the Air Force, especially in its strategic bombing role, was disbanded as a major command and incorporated into the Air Combat Command. As Colonel Drew declares, these changes seem to be "much more than mere coincidence."[69]

B-52s and Doctrine

The overall impact of the Vietnam War on official Air Force doctrine has been negligible. The employment of B–52s, which failed to influence doctrine and theory, can best be explained by the confusion and disagreement caused by the effectiveness of Linebacker II and the illusion of potential victory it created. Military officers and civilians alike have suggested that a Linebacker-style campaign, begun in 1965, could have brought the war to a successful conclusion. Such an argument is, of course, not historical in nature and one that ignores a myriad of factors at work in Vietnam and internationally, factors which in the eight years of major U.S. involvement mutated and changed totally or by degrees.[70] It is also an argument that ignores the fact that the needed weapon system (B–52 Big Bellies) was not actually available in sufficient

quantity until 1967. Even then SAC officials were not willing to commit the numbers Nixon committed in 1972, for fear of being unprepared to meet their strategic responsibilities.

Even more to the point, between 1965 and 1972 détente altered the Cold War, making overt actions against Hanoi easier. Over the same period the nature of the Vietnam War changed from a counterinsurgency campaign, primarily against southern guerrillas, to a lull following the Tet Offensive of 1968, to a conventional war of unification fought mostly by NVA forces beginning with the Easter invasion of March 30, 1972. The changing domestic sociopolitical attitudes of the American public, as well as the fluctuating perspectives of government and military leaders, also affected the way the war unfolded and eventually ended. Of course these factors do not begin to examine the ways in which enemy strategy, tactics, and politico-diplomatic manipulation affected the outcome. Ultimately, the United States was engaged in a limited war whose constraints Lyndon Johnson seemed unable to grasp, but which Richard Nixon clearly perceived as inviolate.

Conclusion

Too few airmen have addressed questions regarding doctrine raised by the war in Vietnam. B–52s did not, and could not, win the Second Indochina War because there were no sound U.S. theories of victory, and the policy derived from this malaise, especially in the 1960s, meant that no weapon, no matter how powerful, could overcome the shortcomings. In 1972 the Air Force thought it could fight a conventional bomber war, but by then it was far too late.

After America's withdrawal, painful memories, bitter legacies, and the misconceptions about the nature and conclusion of the war, as well as disagreements over the nature of the remaining strategic role of the Air Force against the USSR, made it easy for airmen to assign the air war in Vietnam to the trash bin of history. They found it more comfortable to face the familiar issues of nuclear warfare and the European scenario than to wrestle with the 500-hundred-pound Vietnamese "guerrilla."

One must remember that the conflict in Vietnam was viewed as a sidelight to a much larger geopolitical struggle. B–52s were expected to act as a deterrent to a hot war with the USSR and, failing this, to evaporate the enemy in a mushroom cloud. Even if B–52s could not win the bitter sojourn in Vietnam, they ultimately helped the United States win the larger Cold War conflict. But that is another story.

Notes

1. Col. Dennis M. Drew, "Vietnam, 'Wars of the Third Kind' and Air Force Doctrine," unpublished paper presented at Texas Tech University Center for the Study of the Vietnam Conflict, Seminar on the Vietnam War, Apr 18–21, 1996 (hereafter "Vietnam and AF Doctrine"), p. 1n. For details on "Wars of the Third Kind," see Edward E. Rice, *Wars of the Third Kind: Conflict in Underdeveloped Countries* (Berkeley: University of California, 1988).

2. Drew, "Vietnam and AF Doctrine," p. 1n; United States Air Force (USAF), AFM 1–1, *Basic Aerospace Doctrine of the United States Air Force* (Washington, D.C.: Department of the Air Force, 1992), Vol. 1, pp. v, vii.

3. Drew, "Vietnam and AF Doctrine," p. 1n.

4. For more details on these theories, see Giulio Douhet, "Command of the Air," in *Command of the Air* (Washington, D.C.: Air Force History Office [AFHO], 1983), reprint of the 1942 original translation by Dino Ferrari; Brig. Gen. William L. "Billy" Mitchell, *Our Air Force: The Keystone to National Defense* (New York: Dutson Inc., 1921); William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power, Economic and Military* (New York: G.P. Putnam, 1925). For a very clear and concise modern explanation of traditional Air Force roles, policies, theories, and doctrine, see Col. Phillip Meilinger, *10 Propositions Regarding Air Power* (Washington, D.C.: AFHO, 1995).

5. Drew, "Vietnam and AF Doctrine," p. 11; USAF, AFM 1–2, *United States Basic Doctrine* (Washington, D.C.: Department of the Air Force, 1953, 1954, Apr 1955, and Dec 1959). Subsequent USAF basic doctrine manuals were marked AFM 1–1 beginning with the subsequent basic doctrine publication in Fall 1964.

6. Drew, "Vietnam and AF Doctrine," p. 11.

7. *Ibid*.; USAF, AFM 1–2, *Theater Air Operations* (Washington, D.C.: Department of the Air Force, Sep 1953 and Apr 1954). The next edition of this publication did not appear until June 1965 and was redesignated AFM 2–1.

8. Gen. Ronald R. Fogleman, "Aerospace Doctrine: More Than Just a Theory," *Air Power Journal*, Vol. X, No. 2 (Summer 1996), p. 41.

9. Earl H. Tilford, Jr., *Crosswinds: The Air Force's Setup in Vietnam* (College Station: Texas A&M University Press, 1993), pp. 33–34, 66. For more on the Skybolt Missile issue, see Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force* (Maxwell AFB, Ala., 1989) [hereafter *Basic Thinking*], Vol. II, pp. 1–63.

10. Futrell, *Basic Thinking*, p. 63; *Public Papers of the Presidents of the United States: John F. Kennedy, 1962* (Washington, D.C.: GPO, 1963), pp. 900–910.

11. Futrell, *Basic Thinking*, pp. 75–91.

12. *Ibid*., pp. 63–64; Address, Gen. Curtis E. LeMay, CSAF to AFA Convention, Philadelphia, Pa., Sep 21, 1961, text in *Air Force Information Policy Letter for Commanders, Supplement*, Nov 15, 1961, pp. 1–6.

13. Editorial, John F. Loosbrod, *Air Force/Space Digest*, Jan 1963, pp. 28–31.

14. Futrell, *Basic Thinking*, pp. 155–160, 226–230. For more on Zuckert's policy changes, see Eugene Zuckert, "Keeping the Organizational Engine in Tune," *Air Force/Space Digest*, Oct 1964, pp. 37–40.

15. For details on this period, see Stanley Karnow, *Vietnam: A History* (New York: Viking, 1983), specifically pp. 161–348.

16. Tilford, *Crosswinds*, p. 66.

17. *Pentagon Papers: Department of Defense History of United States Decision Making in Vietnam*, Senator Mike Gravel Edition (Boston: Beacon Press, 1971) [hereafter *Pentagon Papers,* Gravel Edition], Vol. III, p. 207.

18. United States Department of State, *United States–Vietnam Relations, 1945–1967* (Washington, D.C.: GPO, 1971), Vol. 4, C. 3:35, 3:4. This is, in fact, the official version

of what later became known as the Pentagon Papers when two unofficial versions were published in the same year.

19. *Pentagon Papers*, Gravel Edition.

20. Drew, "Vietnam and AF Doctrine," pp. 15–16; Department of State, *U.S.–Vietnam Relations*, Vol. 4, C. 3:35–38, 3:4.

21. Futrell, *Basic Thinking*, pp. 171–173, 242, 251–252.

22. Curtis E. LeMay, "Air Power in Guerrilla Warfare," *Air Force Information Policy Letter for Commanders*, Vol. XVI, No. 80 (Washington, D.C.: Office of the Secretary of the Air Force, Apr 15, 1962); Drew, "Vietnam and AF Doctrine," pp. 12–13.

23. USAF, AFM 1–1, *United States Air Force Basic Doctrine* (Washington, D.C.: Department of Air Force, Aug 14, 1964), chap. 6.

24. Drew, "Vietnam and AF Doctrine," pp. 13–15.

25. For general information on Arc Light, see John F. Guilmartin, Jr., "Arc Light," in Stanley I. Kutler, ed., *Encyclopedia of the Vietnam War* (New York: Charles Scribner's Sons, 1996), p. 48. For details on Arc Light operations, see J.C. Hopkins and Sheldon A. Goldberg, *The Development of the Strategic Air Command, 1946–1986* (Offutt AFB, Nebr., SAC/HO, 1986) [hereafter *SAC, 46-86*]; USAF Special Study, HQ SAC, "Activity Input to Project Corona Harvest–Arc Light Operations, 1 Jan 65–31 Mar 68," 3 Vols.; Carl Berger, ed., *The United States Air Force in Southeast Asia, 1961–1973: An Illustrated Account* (Washington, D.C.: AFHO, 1984) [hereafter *USAF in SEA*]; John Schlight, *The Air War in South Vietnam: The Years of the Offensive, 1965–1968* (Washington, D.C.: AFHO, 1988) [hereafter *Years of the Offensive*].

26. *The Joint Chiefs of Staff and the War in Vietnam, 1960–1968*, pt. II, pp. 24-1, 2; Hist, "Strategic Air Command (SAC), Jan-Jun, 1965," Study 101, Vol. I, p. 198; Schlight, *Years of the Offensive*, p. 49.

27. SAC, "Activity Input to Project Corona Harvest, Arc Light" (Offutt AFB, Nebr.: SAC/HO, 1970), Vol. II, p. 2 [hereafter SAC Arc Light Input]; SAC Hist, Jan–Jun 1964, Study 95 Narrative Volume, HA–1093; Msg, COMUSMACV to CINCPAC, "Use of SAC in RVN (Arc Light)," 140805Z May 1965; Schlight, *Years of the Offensive*, p. 50; Larry Cable, *Unholy Grail: The U.S. and the Wars in Vietnam, 1965–1968* (London: Routledge Inc., 1991), pp. 98–100, 109.

28. Msg, COMUSMACV to JCS, "Utilization of Arc Light B–52s," 190330Z Mar 1965; Msg, JCS to CINCPAC, 292147Z Apr 1965; Schlight, *Years of the Offensive*, p. 50; SAC Hist, Jul–Dec 1965, Vol. II, p. 267.

29. Msg, JCS to DIRNSA, "NMCC Opsum, 141–165," 181004Z Jun 1965.

30. Hopkins and Goldberg, *SAC, 46-86*, p. 131 (quote). John Schlight has the same incident in his book, but he has the quote reading "using a sledgehammer to kill gnats." Schlight, *Years of the Offensive*, p. 53. Schlight's source is Hist, "Military Assistance Command, Vietnam (MACV), 1965," pp. 191–192.

31. *A Chronology of Significant Airpower Events in Southeast Asia, 1950– 1968*, Corona Harvest Report, May 1969 [hereafter *Chronology SEA, 50–68*], p. 114; Schlight, *Years of the Offensive*, pp. 54–55, 82–83; SAC Hist, Jul–Dec 1965, Vol. II, pp. 270–271; Msg, Zippo 08–225, 7BS to AIG 673, "Commander's Progress Report/Birch Bark," 02/1255Z Aug 1965; MACV Hist, 1965, pp. 166–167. For precise details on every major ground operation from 1965 to 1968 and their Arc Light and air support components, see Cable, *Unholy Grail*, pp. 41–47, 98–99, 109, 191–192.

32. *Chronology SEA, 50-68*, p. 167; SAC Arc Light Input, Vol. II, pp. 16–17; Msg, SAC to JCS, Zippo 0731, "High Reach Charlie Report," 15/1445Z Mar 1966. For more on Rolling Thunder and interservice rivalries, see Tilford, *Crosswinds*; Larry Cable, "The Operation Was a Success, but the Patient Died: The Air War in Vietnam, 1964–1969," in Dennis Showalter and John G. Albert, eds., *An American Dilemma: Vietnam, 1964–1973* (Chicago: Imprint Publications, Inc., 1993), pp. 109–158.

33. Schlight, *Years of the Offensive*, pp. 148–149.

34. *Ibid*., p. 149 (quote); Memo, 7AF to PACAF, "B–52 Operations," 061234Z Oct

1966; William W. Momyer, *Air Power in Three Wars* (Washington, D.C.: GPO, 1978), pp. 97–102 [hereafter *Three Wars*]; Gen. William W. Momyer, "End of Tour Report, Seventh Air Force," p. 9 [hereafter Momyer, EOTR].

35. Schlight, *Years of the Offensive*, p. 149 (quote); Momyer, *Three Wars*, pp. 99–102. Momyer laid out these issues in Memo, Momyer to Maj. Oakah L. Jones, PACAF, "B–52 Concept,"Aug 7, 1966.

36. Momyer, *Three Wars*, pp. 101–103 (quote); Momyer, EOTR, p. 9; Memo, Momyer to McConnell, Nov 11, 1966; Msg, 7AF to PACAF, "Arc Light Forces," Sep 22, 1966; Corona Harvest (CH), *In-Country Air Strikes Operations, Southeast Asia, 1 Jan 65–31 Mar 68* (Washington, D.C.: AFHO, 1971); Schlight, *Years of the Offensive*, pp. 149–150.

37. Schlight, *Years of the Offensive*, pp. 153, 213; SAC Hist, Jan–Jun 1966, pp. 106, 138; Charles K. Hopkins, *SAC Bomber Operations in the Southeast Asia War*, Study 204, Vol. I (Offutt AFB, Nebr.: SAC/HO, 1985), p. 168; Memo, Deputy SECDEF to CJCA, Sep 1, 1966; SAC Arc Light Input, Vol. III, pp. 1, 15, 49; Ltr, CINCSAC to CSAF [no subject], Aug 26, 1967; *Chronology SEA 50–68*, p. 221 (quote).

38. *Chronology SEA 50–68*, pp. 261–263, 268, 273–274; 7AF Hist, Jan 1– Jun 30, 1968, p. xxii; Rprt, HQ 7AF, No. 6819, "Weekly Air Intelligence Summary," May 11, 1968; Berger, ed., *USAF in SEA*, pp. 156–157; PACAF, CH, *Command & Control*, Book 1, Vol. II, pp. 2–25; SAC Hist, Jul–Dec 1967, pp. 152–153; Msg, SAC/VC to CINCPAC, "Continuous Arc Light Emergency Capability for Operation Niagara," 10/1830Z Feb 1968. *N.B.*: The Tet Offensive also began in January.

39. Schlight, *Years of the Offensive*, p. 292 (quote); Berger., ed., *USAF in SEA*, p. 157.

40. Eduard Mark, *Aerial Interdiction: Air Power and the Land Battle in Three American Wars* (Washington, D.C.: Center for Air Force History, 1994), pp. 358–360; Berger, ed., *USAF in SEA*, p. 119; Tilford, *Crosswinds*, pp. 138–140; 7AF Hist, 1972, p. 80; Bernard C. Nalty, "Interdiction in Southern Laos," unpublished manuscript, Air Force History Office, pp. 250-251. For details on Commando Hunt V, see Hist, "7AF Commando Hunt V," May 1971, pp. 56–57; Tilford, "Bombing Our Way Back Home," pp. 127–128; Jack S. Ballard, *The United States in Southeast Asia: Development and Employment of Fixed-Wing Gunships, 1962–1972* (Washington, D.C.: Air Force History Office, 1982), p. 173; Col. D.L. Evans, Dir Intel, Task Force Alpha, End-of-Tour Report, Jul 6, 1972, p. 30, File 10015110, AFHRA.

41. See Robert Kipp, "Counterinsurgency from 30,000 Feet," *Air University Review*, Jan–Feb 1968, pp. 10–18.

42. Drew, "Vietnam and AF Doctrine," p. 22; USAF, AFM 2–5, *Tactical Air Operations Special Air Warfare* (Washington, D.C.: GPO, Mar 10, 1967), pp. 13, 18.

43. Drew, "Vietnam and AF Doctrine," pp. 22–23; AFM 2–5, pp. 14–16.

44. USAF, AFM 1–1, *United States Air Force Basic Doctrine* (Washington, D.C.: GPO, Sep 28, 1971), p. 6-1.

45. Drew, "Vietnam and AF Doctrine," pp. 23-24; AFM 1–1, 1971, p. 6-1.

46. Richard M. Nixon, *RN: The Memoirs of Richard Nixon*, 2 Vols. (New York: Warner Books, 1978), Vol. 2, pp., 79, 259; Richard M. Nixon, *In the Arena: A Memoir of Victory, Defeat, and Renewal* (New York: Simon & Schuster, 1990), pp. 335–337; Tilford, *Crosswinds*, p. 143; Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: The Free Press, 1989), pp. 152–153; Mark, *Aerial Interdiction*, pp. 365–366; Troung Nhu Tang, *A Vietcong Memoir: An Inside Account of the Vietnam War and Its Aftermath* (New York: Harcourt, Brace, & Jovanovich, 1985), pp. 200–202, 210–213, [hereafter *VC Memoir*]; Henry Kissinger, *The White House Years* (Boston, Little, Brown, 1979), p. 1109.

47. Capt. Charles A. Nicholson, *The USAF Response to the Spring 1972 NVN Offensive: Situation and Redeployment* (Project CHECO, 7AF/DOAC, 1972), pp. 67, 123–124; Tilford, *Crosswinds*, pp. 143-145; Mark, *Aerial Interdiction*, p. 373; Hist, "PACAF, 1 Jul 71–30 Jun 72," Vol. I, pp. 121–122; Hist, "7AF History of Linebacker Operations, 10 May–23 October 1972," 1973, pp. 3–5, File K740.04-24, AFHRA; Nixon,

RN, p. 606; Mark Clodfelter, "Nixon and the Air Weapon," in Showalter and Albert, eds., *American Dilemma*, pp. 169–172 [hereafter "Air Weapon"]; Seymour M. Hersh, *The Price of Power: Kissinger in the Nixon White House* (New York: Summit Books, 1983), p. 506; Melvin F. Porter, *Linebacker: Overview of the First 120 Days* (Project CHECO, 7AF/DOA, 1973), pp. 14–15.

48. PACAF, CH, *USAF Air Operations against NVN, 1 Jul 71–30 Jun 72* (1973), pp. 90–91; Porter, *Linebacker: Overview*, pp. 16–17; Clodfelter, "Air Weapon," p. 171; Momyer, *Three Wars*, p. 33; Tilford, *Crosswinds*, pp. 149–150; PACAF, CH, *Command & Control*, Book I, pp. 1–24. Specifically the report determined that Linebacker I's goal was to "1) restrict resupply of North Vietnam from external sources; 2) destroy internal stockpiles of military supplies and equipment; and 3) restrict flow of forces and supplies to the battlefield."

49. Clodfelter, *Limits of Air Power*, p. 173 (quote p. 166); Bruce Palmer, "U.S. Intelligence and Vietnam," *Studies in Intelligence*, Special Spring Issue 1984, pp. 98–99 (quote).

50. MACV Hist, Jan 72–Mar 73, pp. 53, 74, 79; Mark, *Aerial Interdiction*, pp. 399, 408.

51. Nixon, *RN*, Vol. 2, pp. 188–193; Ted Szulc, *The Illusion of Peace: Foreign Policy in the Nixon Years* (New York: Viking Press, 1978), p. 629.

52. Kissinger, *White House Years*, pp. 1397, 1409–1410; Hersh, *Price of Power*, p. 604.

53. Clodfelter, "Air Weapon," pp. 173–174; Nixon, *RN*, Vol. 2, pp. 222–227, 230; Kissinger, *White House Years*, p. 1411–1412, 1416; Clodfelter, *Limits of Air Power*, pp. 177–179.

54. Clodfelter, *Limits of Air Power*, pp. 179–183; Clodfelter, "Air Weapon," pp. 174–177; Nixon, *RN*, Vol. 2, pp. 224–231, 234–242; Kissinger, *White House Years*, pp. 1420–1447; Hersh, *Price of Power*, p. 619.

55. Clodfelter, "Air Weapon," p. 178. Most of this information was obtained by Col. Clodfelter in his interview with Col. Clyde E. Bodenheimer, Jan 7, 1983, his interview with members of General Meyer's staff, and a USAF interview of Lt. Gen. Gerald W. Johnson by Charles K. Hopkins, Apr 3, 1973, AFHRA, File K239.0512-813, pp. 6–7.

56. Clodfelter, *Limits of Air Power*, pp. 184–185; Brig. Gen. James R. McCarthy and Lt. Col. George B. Allison, *Linebacker II: A View from the Rock*, USAF Southeast Asia Monograph Series, Monogr. 8, Vol. VI (Maxwell AFB, Ala.: Airpower Research Institute, 1979; Washington, D.C.: Office of Air Force History, 1985), p. 41.

57. Clodfelter, *Limits of Air Power*, pp. 191–195; McCarthy and Allison, *View from the Rock*, pp. 171–175; HQ PACAF, *Linebacker II Air Force Bombing Survey*, p. 37; Berger, ed., *USAF in SEA*, p. 167.

58. Clodfelter, "Air Weapon," p. 180; Troung, *VC Memoir*, p. 226; Phillip B. Davidson, *Vietnam at War: The History, 1946–1975* (Novato, Calif.: Presidio Press, 1988), p. 728.

59. William Head and Lawrence E. Grinter, *Looking Back on the Vietnam War: A 1990s Perspective on the Decisions, Combat, and Legacies* (Westport, Conn.: Greenwood, 1993), p. 119; Berger, ed., *USAF in SEA*, p. 167; Tilford, *Crosswinds*, pp. 178–180; Thomas C. Thayer, *War without Fronts: The American Experience in Vietnam* (Boulder, Colo.: Westview, 1985), pp. 26, 37.

60. For more on the Summers book, see Harry G. Summers, Jr., *On Strategy: The Vietnam War in Context* (Carlisle Barracks, Pa.: Army War College, 1981), and his *On Strategy: A Critical Analysis of the Vietnam War* (Novato, Calif.: Presidio Press, 1982; New York: Dell, 1984).

61. USAF, AFM 1–1, *United States Air Force Basic Doctrine* (Washington, D.C.: GPO, Jan 15, 1975); USAF, AFM 1-1, *Functions and Basic Doctrine of the United States Air Force* (Washington, D.C.: GPO, Feb 14, 1979); USAF, AFM 1–1, *United States Air Force Basic Doctrine* (Washington, D.C.: GPO, 1984).

62. AFM 1–1, 1992. Also see Clodfelter, *Limits of Air Power*; Col. Dennis M. Drew, "Insurgency and Counterinsurgency, American Military Dilemmas and Doctrine," CADRE Paper No. 88–1 (Maxwell AFB, Ala.: Air University, Mar 1988); Cable, *Unholy*

Grail; Larry Cable, *Conflicts of Myths: The Development of American Counterinsurgency Doctrine and the Vietnam War* (New York: New York University Press, 1986).

63. U.S. Army and USAF, FM 100–2, AFP 3–20, *Military Operations in Low Intensity Conflict* (Washington, D.C.: Departments of the Army and Air Force, Dec 5, 1990); USAF, AFM 2–11 *Foreign Internal Defense Operations* (Washington, D.C.: Department of the Air Force, Nov 3, 1992); Drew, "Vietnam and AF Doctrine," pp. 32–33.

64. AFM 2–11, 1992, p. 9.

65. *Ibid*., pp. 9–10.

66. Drew, "Vietnam and AF Doctrine," pp. 35–36.

67. For more on parallel warfare and the future of high-tech air power as a result of the Gulf War, see John A. Warden, *The Air Campaign: Planning for Combat* (Washington, D.C.: National Defense University Press, 1988; New York: Pergamon-Brassey, 1989); John A. Warden, "Air Power in the Twenty-First Century," in Richard H. Shultz, Jr., and Robert L. Pfaltzgraff, Jr., eds., *The Future of Air Power in the Aftermath of the Gulf War* (Maxwell AFB, Ala.: Air University Press, 1992); David A. Deptula, "Parallel Warfare: What Is It? Where Did It Come From? Why Is It Important?" in William Head and Earl H. Tilford, Jr., eds., *Eagle in the Desert: A Look Back at U.S. Involvement in the Persian Gulf War* (Westport, Conn.: Greenwood Press, 1996).

68. Drew, "Vietnam and AF Doctrine," pp. 39–40.

69. *Ibid.*

70. The best proponent of this theory is Adm. U.S.G. Sharp, *Strategy for Defeat: Vietnam in Retrospect* (San Rafael, Calif.: Presidio Press, 1978; 1986).

Should Deterrence Fail: Strategic Attack Theory in the Nuclear Era

Mark J. Conversino

Just days before the start of Operation Desert Storm, United States Secretary of State James A. Baker III sought to deter Iraqi dictator Saddam Hussein from ordering his forces to employ weapons of mass destruction during the impending conflict. "God forbid," Baker told his Iraqi counterpart Tariq Aziz, that "chemical or biological weapons are used against our forces—the American people would demand revenge."[1] The Secretary of State did not explain how the Americans would exact their vengeance, but he clearly implied, and the Iraqis perceived, a threat to employ nuclear weapons. Fortunately, as they had since 1945, America's nuclear weapons remained holstered, and the United Nations coalition dismembered Iraq's war machine in a swift and relatively bloodless campaign. The thinly veiled nuclear threat, however, was not unique to the war in the Gulf. When Baker issued his warning to Aziz, he was merely the latest in a long line of American statesmen who had conducted business in the ominous shadow of nuclear weapons.

Few nonevents have generated as much writing and debate as the issue of nuclear war. The enormous destructive force residing in the world's nuclear arsenals made their use "unthinkable." Lawrence Freedman thus noted that "historical experience provides minimal guidance" to nuclear strategists and that the study of nuclear strategy is "therefore the study of the nonuse of these weapons."[2] A nuclear holocaust, though remote, remained a distinct possibility during the major hot wars and crises from 1947 to 1991. However horrific the results of an all-out clash between the West and the USSR, the United States Air Force faced up to the necessity not only to think about nuclear war but to plan, train, and equip to fight it as well.

Nuclear weapons and their potential use have been a fact of life for more than five decades. This paper seeks to provide a broad overview and synthesis of the literature on the evolution of nuclear strategy through the various presidential administrations from 1947 to the present. In particular, the present essay will address as well Air Force strategic attack doctrine and thought in the nuclear era. Time and space, however, do not allow a full discussion of the

many issues related to nuclear strategy. This paper, for example, does not deal in detail with technological progress or changes in force structure.[3]

Witnessing the destruction wrought by their own air forces during World War II, American airmen considered their faith in strategic bombardment vindicated. Furthermore, the utter collapse of Germany and Japan, brought about in no small measure through air power, led them to conclude that the interwar theorists were correct in their assessment of the air weapon's revolutionary effects on warfare. Obviously, populations did not rise up in agony and despair to overthrow their governments, nor did air power win the war by itself. Yet, as the men of the Air Corps Tactical School predicted, the destruction of select vital elements of the enemy's economic and social structure did have wide-ranging effects that sped both Berlin's and Tokyo's collapse. The arrival of the atom bomb simply reinforced the perception, articulated by Army Air Forces Chief of Staff Gen. Henry H. "Hap" Arnold, that air power was now "all-important."[4]

Still, the airmen recognized not only the possibilities that the employment of atomic air power offered to the nation's defense, but the threat that it posed as well. As a result of this realization, deterrence became an important tenet of postwar air strategy. Deterrence is but one element of nuclear strategy, albeit an important one. As Robert Jervis noted, deterrence, in its most elemental sense, "depends on perceptions."[5] Stated simply, one state deters another by convincing it that accepting the status quo outweighs the costs and benefits associated with starting a war. Acknowledging the difficulties of air defense in the dawning atomic era, the authors of the *United States Strategic Bombing Survey* noted that the country would require a powerful air force for deterrence. "The threat of immediate retaliation," the report stated, "with a striking force of our own should deter any aggressor from attacking."[6] Arnold was even more specific:

> . . . it must be recognized that real security against atomic weapons in the visible future will rest on our ability to take immediate offensive action with overwhelming force. It must be apparent to a potential aggressor that an attack on the United States would be immediately followed by an immensely devastating air-atomic attack on him. . . . The atomic weapon thus makes offensive and defensive Air Power in a state of constant readiness the primary requisite of national survival.[7]

As John Greenwood pointed out, Arnold's remarks contain all the different elements of what eventually became strategic nuclear deterrence: "strategic air power, the atom bomb, constant readiness, an air force in-being, and swift, devastating retaliation for aggression."[8]

If airmen recognized the importance of "the bomb" to strategic air

power, they remained uncertain as to the extent of the role it would play in the future of an independent air force. In the immediate aftermath of the war, the Army Air Forces' leadership faced the challenges of demobilization and restructuring, as well as the issue of independence itself. Moreover, airmen would not, on their own, determine if, and when, the new weapons would be used. Apart from the Silverplate project to modify B–29s to carry atomic weapons, the Army Air Forces did not exactly "leap forward" into the nuclear era. A lack of data on atomic weapons and access restrictions that curtailed training prevented any realistic planning for strategic attack in the early nuclear era. For several years, only a single group, the 509th at Roswell Army Air Field, formed the country's atomic strike force. Nevertheless, with the inception of the Strategic Air Command (SAC) in March 1946, the nation's air arm possessed at least the nucleus of what would become arguably the most powerful military force in history.[9]

Events outside the Air Force soon dictated the role of atomic air power in the nation's defense. Even before the end of the fighting in Europe, planning and intelligence officers singled out the Soviet Union as the sole future opponent of the United States. As relations between the two erstwhile allies deteriorated and slipped into a state of cold war, a budget-conscious and war-weary nation looked to strategic air power and atomic weapons as a means to offset the perceived might of the Red Army. In light of failing attempts to outlaw this new weapon type, or at least place it under international control, the nation's air leaders hoped to deter the Soviets through threats of atomic annihilation. At the same time, airmen recognized, as did numerous civilian experts, that deterrence strategies had often failed in the past. Thus, the emerging US Air Force had to prepare and plan for the use of a force of credible size and strength to both deter war as well as prevail in one should deterrence ultimately fail.[10]

In the immediate aftermath of the Second World War, atomic war planning received little attention in the Air Force as theories of the prewar Air Corps Tactical School remained frozen in time. Certainly, atomic weapons reinforced airmen's long-held belief in the principles of surprise and the initiative. Atomic air power would fulfill the vision of Italian air theorist Giulio Douhet by producing a war-ending first blow from the air. Limited resources further constrained any air plan that contained atomic strikes. The nuclear arsenal was extremely small. In 1946, the stockpile of weapons numbered nine. It rose to thirteen in 1947, fifty in 1948, and 250 in 1949.[11] The weapons themselves required assembling, a process that required as much as two days for each. In 1947, the year of Air Force independence, only six weapons assembly specialists and twenty crews were available to load and fly fewer than three dozen B–29s modified for atomic operations.[12] Most Air Force plans produced before the Korean War thus continued to emphasize conventional attacks against the "vital centers" of the Soviet Union.[13]

Early postwar joint planning nonetheless relied heavily on a strategic air offensive to destroy Soviet war-making capacity, while surface forces adopted a strategic defensive posture in Europe. Based on a lack of resources and guidance on the employment of atomic weapons from higher levels, the first major strategic air attack plan, Makefast, was a scaled-down World War II conventional bombing offensive aimed at the Soviet petroleum industry. Relying on the perceived lessons of the war as well as drawing on prewar theories, air planners sought the most efficient means to employ the limited nuclear stockpile. Attacks against major industries such as steel, aircraft, and electric power would require too much time to be effective in the event of a Soviet advance westward. Planners deemed the Soviet transportation net as the "most vital cog" in the USSR's military machine but one too vast for air attacks to affect. Since two-thirds of the Soviet petroleum industry was concentrated in seventeen cities, planners subsequently identified these as suitable—perhaps the only—targets for nuclear attack.[14] Thus, the Red Army, like the German Wehrmacht before it, would grind to a halt for lack of fuel.

Still, none of this planning mattered if President Harry S Truman refused to consider the use of nuclear weapons. Some members of the government and the armed forces downplayed the revolutionary significance of the atom bomb and considered these devices just another weapon. Truman took a different view. "You have got to understand," he told a group of his advisers in 1948, "that this isn't a military weapon. It is used to wipe out women and children and unarmed people, and not for military uses. So we have got to treat this differently from rifles and cannons and ordinary things like that." He ensured civilian control over the small but slowly growing stockpile through the Atomic Energy Act of 1946. The act made atomic weapons a separate component of the nation's arsenal. It also granted to the office of the President sole authority for ordering the use of atomic weapons. The newly formed Atomic Energy Commission (AEC) gained control over both the stockpile of weapons and the production facilities.[15]

Despite Truman's misgivings, planning for an air-atomic offensive moved slowly forward. The Joint Outline Emergency War Plan Broiler, and the subsequent plans Frolic and Halfmoon, all placed heavy emphasis on an air-atomic campaign. In the spring of 1948, however, Truman, still clinging to hopes of international control of the weapon, ordered an alternate conventional plan prepared. He remained convinced that the American people would not tolerate the use of atomic weapons for "aggressive purposes," though the above plans were predicated on containing and defeating *Soviet* aggression.[16]

Halfmoon reflected the limitations of SAC, constraints generated by the limited number of weapons available and the questionable ability of the crews to find their targets. The result, not only for Halfmoon but for the five-year period 1945–1950, was a plan designed for "city-busting." Air strategists expected the plan to "exploit the destructive and psychological power of atom-

ic weapons against the vital elements of the Soviet war-making capacity." Halfmoon called for dropping fifty atomic bombs on the twenty major cities of the USSR containing the largest share of war industries while conventionally armed bombers struck oil targets.[17] Halfmoon's planners aimed to create "immediate paralysis of at least 50 per cent of Soviet industry."[18] In its essential form and goals, however, the plan was actually a nuclear extension of World War II strategic bombing.

Events in Europe would alter Truman's vision of atomic weaponry. By 1948, it was clear that international control of atomic weapons was a dead issue. At the same time, relations with the USSR had frayed almost to the point of open, armed confrontation. In June of that year, the Soviets sealed off all ground access to the Allied sectors of Berlin. The following month, as the crisis deepened, Secretary of Defense James Forrestal ordered the Joint Chiefs to resume serious planning for an atomic offensive. The Air Force in particular pointed to the need for advanced planning and preparation for the employment of atomic weapons. In September 1948, Truman approved NSC–30 in which the prerogative to initiate atomic operations remained with the President. At the same time, Truman officially recognized that the military required the freedom to use "all appropriate means available" in the event of war, "including atomic weapons."[19] A subsequent document, NSC–20/4, issued in November, laid out broad objectives in an all-out war with the Soviets: reduce or eliminate Soviet (communist) control inside and outside the Soviet Union. Interestingly, the administration's guidance did not call for unconditional surrender or occupation of the USSR.

The green light for nuclear war planning also placed the burden for such work on SAC and its recently appointed commander, Curtis LeMay. The critical question for the Air Force remained what to attack and, after answering that, how to build the forces necessary to do so. As the Berlin crisis subsided, two separate events soon propelled LeMay, SAC, and nuclear weapons to the forefront of American defense planning: Truman's fiscal policy and the march of Soviet technical developments.[20]

Truman considered runaway government expenditures, particularly in defense, as a threat to the nation's security. Maintaining the large, conventional forces experts deemed necessary to deter—and fight—the Soviets in Europe would be prohibitively expensive. Air theorists had often argued that air power provided "more bang for the buck" than did surface forces. The advent of atomic weapons appeared to reinforce that claim. While the Air Force did not receive all that it requested, it nevertheless expanded at the expense of the other services. As one historian of the period noted, Truman's "continuing refusal to budget adequate conventional alternatives thus made the United States virtually dependent on the atomic bomb."[21]

While Moscow had retained large conventional forces, the Kremlin also pursued its own atomic program. On September 23, 1949, Truman informed

the American people that the Soviets had detonated an atomic device. The implications of this were clear: a Soviet "bomb" coupled with an aircraft of sufficient range would pose a direct threat to American security for the first time in more than a century. Together with the crises and confrontations in Central and Eastern Europe of the previous years, the "fall" of China to Mao Zedong's communist forces, and revelations of widespread Soviet espionage in America's atomic research program, the reality in 1949 of a Soviet bomb threw official Washington into a panic.[22]

The Soviet acquisition of atomic weapons, while not unexpected, was still a nasty surprise to American policymakers, who considered such an event to be several years down the road. The prospect of Soviet atomic weapons led many in government and defense circles, particularly within the Air Force, to openly discuss the notion of preventive strikes against the USSR. Truman stood firmly against such a move, though it surfaced as one of four recommendations in the landmark document NSC–68. That important national security study, completed in April 1950, just months after the explosion of Moscow's own atom bomb, concluded that within the coming four or five years the Soviets would have the power to cripple the United States. The study's recommendation called for a sufficiently large and diverse defense establishment that would deter the Soviets and prevail in a general war. Ominously, however, the study concluded that the United States faced an implacable foe, "animated by a peculiarly virulent blend of hatred and fear." NSC–68's authors therefore called for a continued atomic buildup together with an increase in conventional forces. Truman had already decided to expand the atomic stockpile and pursue development of infinitely more powerful hydrogen, or thermonuclear, weapons.[23]

Subsequent plans for an air offensive remained consistent with Air Force thinking on strategic attack. For example, Offtackle, in October 1949, increased the size of the atomic offensive to 104 urban targets and 220 atom bombs with an additional 72 weapons held as a "re-attack" reserve. The objective remained breaking or "disrupting" the Soviets' ability and will to continue the war. The Air Force leadership, including LeMay and Vandenberg, was convinced that the strategic air-atomic offensive would likely decide the outcome of a general war at the outset.[24]

Indeed, as they did during the interwar period, airmen viewed the strategic air offensive as the most effective means of defeating an enemy quickly and avoiding a bloody war to liberate Europe. "The atomic bomb cannot be employed with maximum effect if used to further the land and sea missions," one officer wrote in the summer of 1949. "The atomic bomb," he continued, "has changed the nature of war by making the long-range bomber *the decisive weapon* . . . " (emphasis added).[25] Harking back to the perceived lessons of the Second World War, another officer noted that "industrial vulnerability to atomic attack is a major problem confronting the United States today. . . . And

World War II," he concluded, "made it obvious . . . that the basis of military operations in modern war is industry." He called for dispersal, hardening, and other passive means to protect America's industrial base. Striking a Douhetian note for the atomic age, the writer declared that no defense was "impregnable." "Today, if only ten percent of a sizable atomic attacking force penetrates our boundaries we may be defeated."[26] Maj. Gen. Orvil Anderson, writing before the preventive war controversy, saw the exploitation of a strategic air offensive as a "moral" imperative. American military leaders would be "derelict" if they did not reduce the Soviets' ability to strike at the West, and "so minimize the casualties which would be suffered by us and our friends."[27]

Despite the Air Force's confidence in strategic air power, many in the administration and Department of Defense questioned the ability of the Air Force to carry out a successful air-atomic offensive, whether it be preventive, preemptive, or retaliatory. Under LeMay, SAC's state of readiness increased dramatically. Still, an ad hoc committee under Air Force Lt. Gen. Hubert Harmon, analyzing the possible effects of an atomic offensive, concluded that SAC was incapable of executing existing war plans. The committee's unanimous report expressed doubts that the Soviets would collapse as a result of the planned attack. They also did not believe an atomic offensive would slow a Soviet advance into Western Europe, the Middle East, and the Far East. Furthermore, the Harmon Committee noted that the air offensive, by causing unprecedented levels of destruction, might produce "reactions detrimental to the achievement of Allied war objectives." Nevertheless, in the committee's opinion, an air-atomic offensive remained "the only means of inflicting shock and serious damage to vital elements of the Soviet war-making capacity . . . the advantages of its early use would be transcending."[28] Thus, the Harmon report, and a subsequent study conducted by the Weapons Systems Evaluation Group (WSEG–1), cast doubt on the wisdom of maintaining an air-atomic offensive as the mainstay of American strategic planning. Nonetheless, the strategic air plan remained viable as the only alternative to Soviet conventional power.

By the late summer of 1950, the Harmon Committee's report, and concern over the rapidly deteriorating situation in Korea, led the JCS to mandate three broad missions for SAC beyond simply attacking Soviet cities and industry. The first required the *blunting* (Bravo) of Soviet capabilities to deliver atomic weapons against the United States and her allies. The second called for attacks to *retard* (Romeo) Soviet advances in western Eurasia. The third, one SAC and the Air Force already embraced, was the *disruption* (Delta) of the vital elements of the Soviet war economy.[29] The new, broader guidance implied joint military operations but also left open for consideration ideas that many airmen found appealing. If mounted quickly, and on a large scale, the air-atomic offensive, in conjunction with conventional operations, could prove to be *the* decisive factor in a general war with the Soviets.

Time and space do not allow a full discussion of the Korean War and its impact on defense policy and spending. What is important, however, are the perceived "lessons" airmen and their political leaders derived from the war. The Chinese entry into the war convinced many Americans, among them NATO Supreme Commander Gen. Dwight D. Eisenhower, that World War III was imminent. Reacting to the crisis, the Truman administration embarked on a major arms buildup, nearly tripling defense spending between 1950 and 1952. Many of the new resources went into conventional forces, prompting some historians to consider Truman's actions a realization of the country's overreliance on atomic weapons. Samuel F. Wells, however, noted that the administration also "poured money at a furious rate into the improvement of American strategic nuclear forces and into the program for the creation of tactical atomic weapons." Secretary of Defense Robert Lovett granted clear priority within the rearmament drive to the Air Force and SAC. The JCS concurred in Truman's policies.[30]

In light of Truman's improvised policy of "limited war" in Korea, SAC planners were skeptical that their forces, armed with either conventional or nuclear weapons, could have a strategic impact striking targets in the north. While SAC heavy bombers did destroy North Korea's limited industrial base, the "real" strategic targets lay in Soviet or Chinese territory, inviolate under Truman's guidance. LeMay, irritated over what he perceived as the wastage of his strategic force, nevertheless told Vandenberg that "the employment of atomic weapons in the Far East would probably not be advisable at this time unless this action is undertaken as part of an overall atomic campaign against Red China." Such sentiments reflected Air Force ideas about what constituted a true "strategic attack." Many years after the war, LeMay told an interviewer that, in Korea, "We never did hit a strategic target." One of his subordinates, Lt. Gen. Jack J. Catton, a veteran of the Pacific War and long-serving member of SAC, agreed. "It was interdiction," he quipped. "The strategic targets—the resources—were located north of the Yalu. . . ."[31]

Elected in part by the nation's disgust over the progress of the war in Korea, Eisenhower entered office under a self-proclaimed mandate for change. He actually continued moving in a direction set by the Truman administration. The likelihood of the use of nuclear weapons remained one issue of critical importance to SAC and the Air Force. On this, however, Eisenhower wrought a major change in policy that influenced Air Force planning and thinking about general (and to some degree, limited) war for the next decade.

As President, Eisenhower retained the option of preempting a Soviet attack and, unlike Truman, believed that any major war with the Soviets would be nuclear. Driven by the same fiscal pressures as his predecessor, Eisenhower likewise sought to use nuclear weapons to offset the Soviet Union's conventional strength as well as the Kremlin's burgeoning nuclear arsenal. The result was his New Look posture. Much has been written elsewhere about the twists

and turns in the formulation of the policies and priorities behind the New Look. In a nutshell, however, Eisenhower's defense doctrine, like Truman's, placed a heavy reliance on strategic nuclear air power. Anxious "not to go broke" in what he saw as a lengthy cold war with the Soviets, Eisenhower believed that threats of atomic attacks during the Berlin crisis of 1948 and in Korea in 1953 proved both the deterrent and coercive value of nuclear weapons. Thus, in his state of the Union address on January 7, 1954, Eisenhower declared American policy was to deter aggression by maintaining a "massive capability to strike back." Secretary of State John Foster Dulles, in a speech made just a few days later, echoed his boss' sentiments. Nuclear weapons, Dulles stated, provided "more security at less cost." The best way to deter the Soviets was "to depend primarily upon a great capacity to retaliate instantly by means and at places of our choosing." Massive retaliation was born.[32]

Air Force doctrine, together with the widely held belief within the service that the USSR was the only enemy that mattered, dovetailed nicely with Eisenhower's stated policies. The development of the New Look and massive retaliation coincided with the release of the first post-independence Air Force doctrinal manuals. Air Force Manual (AFM) 1–2, *Basic Doctrine* of April 1, 1953, reiterated what airmen had come to accept as the "conventional" wisdom on air power, a train of thought consistent with the interwar theorists. "Air forces," the manual stated, "find their greatest opportunities for decisive actions in dealing immediately and directly with the enemy's warmaking capacity—both in being and potential." Air attacks sought to destroy or neutralize the "enemy's industrial capacity" as well as "forces presenting unacceptable threats." In a section entitled "Control of the Air," the manual's authors declared that "no nation can long survive unlimited exploitation by enemy air forces utilizing weapons of mass destruction." AFM 1–2 extolled the virtues of seizing the initiative, including the ability to destroy or cripple an opponent's air forces, thereby limiting damage to the United States. Acknowledging the probable decisiveness of "weapons of mass destruction," the manual stressed that these same weapons "in no way lessen the need for careful selection of objectives and targets."[33]

Taking up a Douhetian theme, AFM 1–8, *Strategic Air Operations,* informed its readers that "in modern warfare, the physical security of a nation is dependent upon the decisive effects of its air forces upon the warmaking will and capacity of an enemy nation." A strategic air offensive was essentially unstoppable; despite losses, "successful penetration is inevitable and devastating in effect." The theories of the interwar years and the experience gained from operations in war were manifested throughout the manual. "The fabric of modern nations is such a complete interweaving of major single elements that the elimination of one element can create widespread influence upon the whole." Properly executed, concentrating enormous destructive power in both

time and space, strategic air operations would "disrupt an enemy nation to the extent that its will and capability to resist are broken."[34] Manual 1–8 remained operational doctrine until the Air Force issued AFM 2–11 in December 1965.

In many respects, Curtis LeMay's views of nuclear strategy are of great importance in understanding Air Force thinking on the matter during the decade following the conclusion of hostilities in Korea. Despite the feverish hallucinations of some historians and writers, LeMay preferred preemption, but he realized the choice was not his to make. Once ordered to attack, however, LeMay wanted SAC to throw one massive "Sunday punch" designed to disarm and destroy the Soviet Union in as short a period as possible. Still, he recognized the deterrent mission of his command. "First and foremost," LeMay told a House Armed Services Subcommittee in 1956, "[SAC] must possess sufficient strength and readiness to deter open aggression against the United States." LeMay built SAC into a "striking force so efficient and powerful that no enemy could, in justice to his own present and future, attack us—through a sneak assault or any other way."[35]

Should deterrence fail, LeMay and SAC were ready to execute their plans. With a focus on the blunting and disruption elements of the JCS's nuclear strategy, SAC would seek to defend the United States by attacking the Soviet Union's strategic forces. SAC would win the air battle first through a coordinated strike intended to destroy the Red Air Force on its airfields. The command's 1954 war plan, for example, contained 1,700 designated ground zeroes, or aiming points, of which 409 were airfields. Such actions also protected (limiting the damage to) the United States. Airmen long believed in the necessity to establish the first blow in an air war; considering the decisiveness of a nuclear air attack, failure to do so would be irresponsible. Discounting the possibility of an impervious defense against air attack, LeMay stated that the Air Force, in light of growing Soviet strength, would have to "go back to the rulebook and principles of war and fight the air battle first, which means that we must as quickly as possible destroy their capability of doing damage to us."[36]

SAC's optimum strike plan for 1954 illustrates LeMay's and the Air Force's approach to fighting—and winning—a war with the USSR. Within hours of receiving orders from the President, SAC would unleash 735 bombers and 700 atomic weapons against the Bravo and Delta target lists. In the words of a U.S. Navy captain attending a then-classified SAC briefing on the plan, when SAC was finished, "virtually all of Russia would be nothing but a smoking, radiating ruin at the end of two hours." In theory, such a strike would indeed be decisive within days, if not hours, of the start of hostilities.[37]

Of course, the growing Soviet arsenal meant that nuclear war was a two-way street. Indeed, operational and technical limitations prevented the Air Force from adopting a purely counterforce plan. As one historian noted, "Massive, accurate and virtually simultaneous raids on all elements of the bud-

ding Soviet nuclear forces would have been required to guarantee the success of a pure counterforce strategy."[38] While counterforce targets remained in SAC's plans, the resources, plus adequate and timely intelligence and target data, all were simply unavailable.

Surprisingly, the enormous growth in American nuclear power did not bring the administration peace of mind. As the end of Eisenhower's second term neared, the President grew uncomfortable with the status quo. Doubts about the feasibility (and morality) of a reliance on industrial targeting grew both inside and outside the Air Force. In the face of Soviet power, even Dulles questioned the viability of massive retaliation as declaratory policy. The President kept open the option of a preemptive strike but tended to cling to the notion that the "biggest thing today is to provide a deterrent to war."[39]

At the same time, Eisenhower and the JCS recognized the need to better coordinate nuclear targeting. Each U.S. commander of a unified or specified command (including SAC, a specified command) oversaw his command's preparation of its own nuclear plans, causing a great deal of duplication and confusion. On August 11, 1960, Eisenhower approved the creation of the Joint Strategic Target Planning Staff (JSTPS) under SAC domination. The CINCSAC, now Gen. Thomas Power, assumed the title Director of Strategic Target Planning and was charged with developing, on behalf of the JCS, the *national* nuclear war plan, the Single Integrated Operational Plan (SIOP). Though officers from the other services worked on the JSTPS, the Air Force concept of strategic nuclear warfare continued to pervade the planning for a potential war with the Soviet Union.[40] The development of the SIOP marked a watershed in the evolution of strategic attack thought and planning. The new national nuclear war plan was, in the words of one historian of the period, the "institutionalization of overkill."[41]

The new SIOP did, however, reflect current Air Force doctrine. AFM 1–2, dated December 1, 1959, stated that air forces were the "means of carrying out operations immediately against an enemy at any desired point in time or space." This required that they be "employed on the offense at the very outset of hostilities." In the section on employment of "aerospace forces," the manual noted that "as a matter of national survival," the Air Force "prepares aerospace forces for fast reaction, high rates of operation, and dependability in closely coordinated attacks." The concept behind the new nuclear plan, SIOP–62, envisioned the strategic force attacking at once the entire target list, which included the whole of the "Sino-Soviet bloc." If the SIOP appeared to those outside the Air Force to be "overkill," the manual offered a partial explanation.

> A general war may involve one conflict or more than one conflict fought simultaneously or in series. It follows, therefore, that the best preparation for limited war is proper preparation for gen-

> eral war. The latter is more important since there can be no guarantee that a limited war would not spread into a general conflict.[42]

With the buildup of strategic forces during the decade of the 1950s, the Air Force was certainly prepared to fight a general, nuclear war.

Indeed, the nation seemed to suffer from an embarrassment of nuclear riches. In the final years of the Eisenhower administration, from 1958 to 1960, the nuclear stockpile tripled in size, from 6,000 to 18,000 weapons. In addition to the huge bomber fleet under SAC, twelve Atlas intercontinental ballistic missiles (ICBMs) were operational in the United States, and ninety Thor and Jupiter IRBMs were deployed in Europe. The Eisenhower administration had also authorized another 650 Atlas, Titan, and Minuteman ICBMs and 14 Polaris submarines, each equipped with 16 missiles.[43]

Thus, when elected to the presidency in 1960, John F. Kennedy inherited from Eisenhower a strategic air force of unprecedented striking power. Within a year of Kennedy's inauguration, his secretary of defense, Robert McNamara, surprised at the scope of the SIOP–62, directed a review of the plan. Writing more than two decades after his first SIOP briefing, McNamara declared that *"nuclear weapons serve no military purpose whatsoever. They are totally useless—except only to deter one's opponent from using them.* This is my view today. It was my view in the early 1960s" (emphasis in original).[44] If true, McNamara's statement may explain, in part, his extremely negative reaction to the SIOP.

McNamara was most concerned with the rigidity of the plan. The briefing he received on September 13, 1961, actually stressed the SIOP's supposed flexibility, citing "withhold" options against targets in the satellite nations of the Soviet bloc. After extolling the SIOP's flexibility, the briefer—Chairman of the JCS (CJCS) Gen. Lyman L. Lemnitzer—declared that "it must be clearly understood that any decision to execute only a portion of the entire plan would involve acceptance of certain grave risks." A partial SIOP would leave Soviet military targets "uncovered," providing Moscow with a potentially powerful retaliatory strike force. Thus, the CJCS concluded, "the ability to defeat the enemy must not be lost by the introduction into the SIOP of an excessive number of options which would contribute to confusion and lower our assurance of success under the most adverse circumstances."[45]

Adding options to the SIOP, and therefore some measure of "flexibility," is exactly what McNamara set out to do. Lemnitzer's briefing coincided with the height of yet another crisis over Berlin, highlighting the impracticality of an "all-or-nothing" assault on the Soviet bloc regardless of the provocation. McNamara's approach to nuclear strategy embodied two concepts: counterforce/"no cities" and limited "major attack options." Echoing the tone of the new administration's overall defense policy, McNamara called for the applica-

tion of "flexible response" in nuclear planning. Part of that posture included an option to withhold from attack Soviet population centers, a notion he floated publicly during a speech in Ann Arbor, Michigan, in 1962.

McNamara's reasoning was relatively clear: if war broke out, the United States would destroy Soviet military power while retaining a "second-strike" force capable of destroying Soviet urban-industrial centers if the Kremlin persisted. Kennedy and McNamara also sought "controlled responses and negotiating pauses" in fighting a nuclear war. McNamara directed the JSTPS to build a new nuclear war plan that broke the "optimum mix" into three theoretically distinct target sets: (1) nuclear-threat targets; (2) other military targets; (3) urban-industrial targets. McNamara retained the option to execute the full SIOP at once if the situation called for it.[46] While counterforce options remained in the SIOP, McNamara placed greater emphasis on the second-strike option that came to be known as "Assured Destruction."

Assured Destruction was in essence a deterrent and not a war-fighting, strategy. McNamara wanted the Soviets to understand that the United States would be able to devastate the USSR even after a Soviet first strike. Likewise, with both sides possessing the ability to ride out a first strike and destroy the other's society in response, "victory," in Aaron Friedberg's words, "had become impossible, mutual destruction was assured." Thus, Assured Destruction in time gave way to *Mutually* Assured Destruction. The deliciously appropriate acronym for this strategy, MAD, would cloud the public's, and the military's, perceptions of nuclear policy for many years.[47]

While the SIOP did not change significantly, the shift in nuclear strategy from massive retaliation to flexible response and assured destruction affected Air Force doctrine. For example, the August 1964 version of AFM 1–1, *United States Air Force Basic Doctrine*, stated that "thermonuclear weapons and assured delivery capability in the hands of potential enemies have altered the use of total military power." In an all-out war with another major nuclear power, the manual explained, even the "victor" might suffer "unacceptable damage." The Air Force accepted the concept of holding the enemy's population hostage: "our threat to enemy cities would be useful mainly as a coercive force, to restrain an enemy from introducing his total capabilities." AFM 1–1 now recognized the concept of "intrawar deterrence" as well as "second strike options." In a major departure from previous doctrine, however, the August 1964 edition explicitly discussed counterforce and countervalue operations. The purpose of counterforce operations, according to the manual, was to coerce an opponent into ending a conflict before it escalated to attacks against his cities. "We intend to leave intact the vital economic and political framework of his society," the manual's authors declared, "provided he exercises similar restraint."[48] This was a far cry from the massive retaliation–era doctrine that stressed the need for the "compression of firepower in time and space" intended to deny the enemy time to recuperate from the shock of dis-

ruption.[49]

Air Force Manual 2–11, *Strategic Aerospace Operations*, dated December 1, 1965, also reflected the new thinking about strategic nuclear war. It echoed longstanding theory and doctrine by claiming that strategic air warfare "makes the total structure of an enemy's war-making capacity an exploitable target area." While previous doctrine extolled the virtues of taking the initiative, this edition noted that strategic forces could either attack at the outset or "ride out and survive an attack. Thus, they provide a secure retaliatory capability." Under the section "Employment Planning," the manual emphasized the ability of strategic forces to "apply appropriate force at any level of conflict." AFM 2–11 also discussed counterforce and countervalue targets, noting that "selective attack options in conjunction with target selection, . . . on counterforce targets can be varied to provide a *graduated response*" (emphasis added).[50]

If McNamara, serving under both Kennedy and Lyndon B. Johnson, managed to "loosen" nuclear strategy, the SIOP remained cumbersome. Accordingly, like his predecessors, Richard M. Nixon ordered a review of U.S.strategic plans and force structure and found them wanting. The growth in the Soviet strategic arsenal coincided with a leveling off of the American part of McNamara's plan to avoid an unlimited arms race. Waning American confidence in successful counterforce operations consequently slumped further. In his February 1970 Foreign Policy Message to Congress, Nixon sounded a note of despair over existing strategic policy. He asked, "Should a President, in the event of a nuclear attack, be left with the single option of ordering the mass destruction of enemy civilians, in the face of the certainty that it would be followed by the mass slaughter of Americans? Should the concept of assured destruction be narrowly defined and should it be the only measure of our ability to deter the variety of threats we may face?"[51]

Clearly, both Nixon and his advisers realized that the choices available to the President were not quite that stark. On the other hand, the President's options, despite changes in emphasis and strategy, were not that great, either. Massive—and effective—counterforce strikes were no longer possible, considering the Soviet Union's strength. Still, the President might face three choices in a crisis: (1) authorize strikes against Soviet strategic forces that might actually leave the US weaker than the USSR; (2) initiate the assured destruction option against both military and urban-industrial targets; or (3) do nothing. Nixon's advisers also considered the possibility of uncontrolled escalation following the outbreak of hostilities and the impossibility of a successful, full-scale counterforce strike. Following a Department of Defense (DOD) review between 1972 and 1974, the administration recognized the need to build additional flexibility into strategic war plans.[52]

The result of the DOD's review was National Security Decision Memorandum (NSDM) 242, signed by President Nixon on January 17, 1974,

and the Nuclear Weapons Employment Policy (NUWEP) signed by Secretary of Defense James Schlesinger on April 4, 1974. The new policy embodied in these documents, soon known as the Schlesinger Doctrine, had two major components. The first was the creation of limited nuclear options (LNOs) to enhance the credibility of deterrence and provide escalation control following the outbreak of war with the Soviets. NSDM–242 expanded the range of options open to the President, with plans calling for the employment of anywhere from a few to several hundred nuclear weapons. Many of these options remained counterforce in nature and would ostensibly allow the United States to respond to Soviet aggression at an appropriate level. In the past, Schlesinger noted, even the "limited" options crafted in SIOP–63 would be "virtually indistinguishable from an attack on cities. . . . So what the change in targeting (NSDM–242) does is give the President of the United States, whoever he may be, the option of limiting strikes down to a few weapons."[53]

The Schlesinger Doctrine continued to emphasize the destruction of Soviet economic and industrial targets. In the past, Air Force planners and administration policymakers sought to cripple Soviet war-making or supporting industry in order to prevail *during* a conflict. Now, in the first concrete declaration of posthostility objectives, NSDM–242 called for the crippling of the Soviet economy to impede postwar recovery. Turning back to the statistical "metrics" of assured destruction, the new doctrine called for the United States to retain the capability—following a Soviet first strike—sufficient to kill 30 percent of the enemy's population and lay waste to three-quarters of his industry. NSDM–242 directed the development of plans that resulted in the "destruction of the political, economic, and military resources critical to an enemy's post-war power, influence and ability to recover . . . as a major power." Thus, rather than launch a massive assault intended to simply produce the greatest numbers of casualties and the largest amount of physical destruction, NSDM–242, according to Scott Sagan, sought to provide a political rationale to the concept of assured destruction. "Victory" in a nuclear war with the USSR now depended on which side recovered some semblance of late twentieth-century civilization first.[54]

Air Force doctrine continued to evolve with the changes in national policy. AFM 1–1, January 15, 1975, stated that "the deterrence of strategic nuclear war is the highest defense priority of the United States." The manual referred, for the first time, to the strategic triad of manned bombers, ICBMs, and SLBMs. The January 1975 version of Air Force basic doctrine continued to stress, as did past manuals, the importance of seizing the initiative and the decisiveness of offensive actions. The manual also provided evidence of the continuity of strategic thought in the nuclear era. "Strategic attack is directed against selected vital targets of an enemy nation so as to destroy that nation's war-making capacity or its will be [*sic*] continue the conflict." Air Force doctrine now considered conflict at four levels, defined by the types of weapons

employed and the scope of operations: strategic nuclear war, theater nuclear war, theater conventional war, and subtheater or localized conflict.[55]

In terms of employing nuclear weapons, Air Force doctrine had changed significantly since the mid-1950s. Gone were references to using the entire force at the outset to achieve maximum shock and "disruption." AFM 1–1 now referred explicitly to escalation control, the varied levels of strategic nuclear operations, and the goal of impeding postwar recovery. Strategic nuclear operations "may range from selective, limited employment at a low-intensity level to large-scale, high-intensity employment against forces and resources essential to the enemy's continued viability as a functioning postwar power." The manual's treatment of theater nuclear warfare reflected the incorporation of selective and limited nuclear options into nuclear strategy: "Theater nuclear capabilities which lessen the potential for increased collateral damage help diminish the probability of escalation." "As a result," the section concluded, "theater nuclear operations can be made more credible."[56]

As with previous administrations, however, upon taking office in January 1977, President Jimmy Carter and his advisers were not entirely happy with strategic policy. Despite the numerous changes that had occurred under both McNamara and Schlesinger, Carter faced an ever more powerful Soviet Union. The growth of the USSR's offensive and defensive forces led American strategists and policymakers to doubt that even America's highly capable triad posed a sufficient deterrent as a basis for national security. Carter directed an interagency review of policy and strategy, eventually signing Presidential Directive (PD) 18. PD–18 directed modernization studies of the ICBM force, a strategic reserve force study, and a comprehensive Nuclear Targeting Policy Review (NTPR).[57]

The NTPR provided the foundation for the Carter administration's policy and altered the philosophy behind strategic nuclear targeting. An extensive survey of Soviet doctrine and force structure resulted in a "countervailing strategy." According to Leon Sloss, the director of the NTPR, the principal focus of the new strategy was the denial of Soviet objectives, as the Soviets themselves saw them.[58] Formalized as PD–59 in 1980, the countervailing strategy, in the words of Secretary of Defense Harold Brown, focused on the specific values of the Soviet leadership. According to Brown, PD–59 was a "specific recognition that our strategy has to be aimed at what the Soviets think is important to them, not just what we might think would be important to us in their view."[59]

Under the countervailing strategy, the *effects* sought through targeting changed. The strategy assumed that the Soviet leadership valued its own survival more than that of its people. Thus SIOP–5F, reflecting PD–59 guidance, contained some 5,000 leadership targets. To further exploit the leadership's fear of losing their grip on power, planners targeted elements of the Soviet food supply as well as Red Army units stationed in the Far East, thereby mak-

ing the Soviets vulnerable to a Chinese attack.[60] Although PD–59 did not change the essence of targeting guidance under NSDM–242, it backed away from the counterrecovery mission, seeking instead to deny Soviet war aims.

PD–59 was not a major departure in existing strategic doctrine; Secretary Brown characterized it instead as "a refinement, a codification of previous statements of our strategic policy." One White House official identified what was probably the most important aspect of the policy and its relationship to nuclear war planning: "In the past nuclear targeting has been done by military planners who have basically emphasized the efficient destruction of targets. But targeting should not be done in a political vacuum."[61] McNamara and Schlesinger might have argued with that observation. Military planners responded to political guidance throughout the nuclear era. The lack of political postwar "goals" led to the military's emphasis on the "efficient destruction of targets."

Nevertheless, the incoming administration of Ronald Reagan accepted and refined Carter's countervailing strategy. In October 1981, President Reagan signed National Security Decision Directive (NSDD) 13, setting the goal of "prevailing" in a protracted nuclear war lasting as long as six months. The sharp edge of Reagan's Cold War rhetoric may have led some to believe that his administration was actually placing a much greater emphasis on nuclear warfighting than his predecessor. In fact, nuclear strategy under Reagan continued to emphasize deterrence and the conclusion of a nuclear exchange as quickly as possible on terms favorable to the United States. To lessen a perceived dependence on nuclear weapons, President Reagan placed a high priority on enhancing America's conventional forces.[62]

During previous transitions from one administration to another, the new leadership generally expressed dissatisfaction with the status quo. Strategic doctrine under Reagan retained many features of the Carter years. For example, planning continued to deemphasize counterrecovery targeting. SIOP–6, effective October 1, 1983, retained the targeting classifications of previous plans. The new plan embodied the concept of "protracted nuclear war" as envisioned by the Carter administration. It also increased the Carter-era focus on targeting leadership. Certainly, this was nothing new. American nuclear war plans had, from the very first, contained provisions for attacking the Soviet leadership.[63]

In the meantime, the JSTPS undertook to cull the targeting list. that contained more than 50,000 targets in 1982, double the number in 1974, and twelve times that in the data base of the first SIOP. The elimination of the counterrecovery mission allowed the removal of many of the 15,000 targets in the economic-industrial category. Planners also deleted many of the minor military installations among the 25,000 other military targets listed in 1982. By the end of Reagan's second term, the list contained a "mere" 14,000 targets.[64]

Less than a year after Reagan left office, however, the Soviet empire

began to unravel in Eastern Europe. Soviet dictator Mikhail Gorbachev, in an attempt to revive the moribund East Bloc, unleashed latent forces that quickly exceeded his ability to control them. As the decade of the nineties dawned, the strategic landscape was changing at a dramatic pace. The impending collapse of the USSR itself and a perceived end of the Cold War forced the administration of George Bush to reassess, once again, strategic nuclear doctrine and strategic attack in general.

By the latter part of the 1980s, it was clear to many observers that political changes within the crumbling Soviet bloc might also herald a new era in nuclear strategy. Indeed, Edward Luttwak, writing in 1988, declared the emergence of a "postnuclear" era.[65] Likewise, Air Force thinking on strategic attack began to shift away from an emphasis on nuclear weapons. Col. Phil Meilinger noted that the threat of the Warsaw Pact, "so comfortable, so stable, and so predictable," had led SAC, in part, to see "strategic nuclear operations and little else." If the Soviet threat, and its nuclear arsenal, was indeed fading from the scene, nuclear strategic attack theories would be irrelevant. "The concept of conventional strategic air power," Meilinger lamented, "together with its ability to be decisive at the operational and strategic levels of war—has been forgotten."[66] The successful conventional air campaign against Iraq in 1991 drove home the point that air power could achieve strategic effects through conventional operations.

As the public debate turned on the perceived obsolescence of nuclear weapons and Cold War deterrence theories, the Air Force adjusted to the "lessons" of the Gulf War. AFM 1–1, effective in March 1992, continued to stress the central importance of strategic attack to the successful exploitation and employment of air power. Nevertheless, the role of nuclear weapons in air operations is noticeably reduced in this doctrinal manual. The Air Force continued to note the presence of identifiable and targetable "centers of gravity" in any enemy "with the capacity to be a threat." Now, however, precision weaponry, not nuclear warheads, gave strategic attack its "punch." Accompanying essays on strategic attack and deterrence in the manual's second volume sounded many long-standing Cold War themes on nuclear deterrence: escalation control, assured destruction (or retaliation), and intrawar-war deterrence. "Most recently, however," the manual noted, "renewed emphasis has been placed on conventional deterrence of general war as the most meaningful means for regulating the aggressive behavior of potential adversaries."[67]

More recently, the post–Cold War period—perhaps the "late nuclear era"—has brought old arguments back to center stage. William J. Perry, former Secretary of Defense under the first administration of President Bill Clinton, sounded a call for "preventive defense." The current concept of deterring states from seeking access to weapons of mass destruction, including nuclear weapons, is rather more complex than the preventive war impulses of the early Cold War period. It is nonetheless critical to the pursuit of the

nation's desire for a stable, global order. Perry reinforced the need to retain a nuclear force of sufficient size and sophistication to deter "any nuclear state"—including the Russian and other successor states to the USSR—in his annual reports to Congress for both 1995 and 1996. At the same time, he kept open the "counterforce" option for preventive strikes against lesser states, seeking "capabilities to seize, disable, or destroy WMD [weapons of mass destruction] arsenals and their delivery means prior to their use without unacceptable collateral effects."[68]

The most recent Air Force document on strategic attack, Air Force Doctrine Document (AFDD) 2–1.2 reflects, as previous doctrine did, current national policy and strategy as well as the changed nature of the post–Cold War world. AFDD 2–1.2 retains the Air Force's traditional faith in the efficacy of strategic attacks: "Strategic attack is often viewed as the preeminent mission of air power." In keeping with the traditional line of Air Force reasoning, developed through the Air Corps Tactical School, World War II, and the long Cold War, this document claims that "strategic attack can cripple industrialized, technological, or information-based opponents. . . ." As for nuclear weapons, once the centerpiece of Air Force strategic attack thought and doctrine, the draft manual sounds the end of the "strategic equals nuclear" concept. "The advent of precision non-nuclear weapons . . . [has] in many cases supplanted what many considered to be an unusable and horribly destructive nuclear strategy with one that can attain many of the same objectives with minimum collateral damage." Gone is the talk of earlier manuals like AFM 1–8 and its emphasis on *employing* nuclear weapons; only deterrence remains.[69]

Many observers have come to view the Cold War theories of nuclear deterrence and warfighting as some aberrant form of strategic thought. Nevertheless, airmen took the new weapons handed them in 1945 and integrated them with existing doctrine. The Air Force continued to favor seizing the initiative and destroying the enemy's air, and later, missile, forces as a way both to gain "command of the air" and to limit the damage an enemy could inflict on the United States in much the same fashion that Douhet suggested during the interwar years. Nuclear planners sought "vital targets," the destruction of which could decide the war. The fact that the difference between the victor and the vanquished in a nuclear war was determined by the percentages of industries and population that managed to ride out the conflict might boggle the imaginations of academics and policymakers alike. Air Force planners, however, had no choice but to plan to fight and win a nuclear war with the Soviet Union—whatever the political definition of victory might have been.

The current edition of AFM 1–1 defines doctrine as "what we hold true about aerospace power and the best way to do the job in the Air Force."[70] That perspective differs from definitions of strategic attack doctrine during the heyday of nuclear weapons. In the early years of the atomic era, a lack of direction from the highest levels of government allowed the Air Force a certain

degree of latitude in planning and equipping for a nuclear war. As the Cold War progressed, successive presidents and their civilian advisers became more deeply involved in developing nuclear strategy. National policy directly affected the evolution of Air Force doctrine on strategic attack. In many ways, then, doctrine reflected the strategies and priorities developed by civilian leaders. By the late 1960s, the institutionalization of nuclear planning within the SIOP took strategic thought within the Air Force down to the level of evaluating target sets. Thus, during the last two decades of the confrontation between the United States and the USSR, Air Force nuclear strategic attack doctrine reflected presidential policies more than any purely military theory. This, of course, is understandable given the destructive power of nuclear weapons. Fortunately, we will probably never know if strategic attack doctrine, as it applied to "nukes" from 1947 to 1991, laid out the "best way to do the job in the Air Force." Nuclear deterrence between the superpowers "worked," and the awesome weapons of the two nations' strategic arsenals remained on the airfields and in their silos.

Nevertheless, the theoretical nature of the topic of strategic attack in the nuclear era does not mean that the issues involved in the nuclear debates and planning of the last fifty years are moot. A seemingly recent notion, "parallel warfare," stresses the rapid and simultaneous attack against the entire structure of an enemy state. Nuclear planners from 1959 to the present would find the theory quite familiar. As the SIOP evolved, nuclear plans included "leadership" options, a "decapitation" strategy favored in a conventional sense by some contemporary air theorists.[71] As Karl Mueller writes "contemporary arguments about the coercive impact of targeting leaders, command and control systems, economic infrastructure, military forces, or civilian populations essentially recapitulate debates about nuclear targeting from the 1980s and before. . . ."[72] At the same time, the idea of escalation control still applies in conventional operations. Secretary Baker clearly intended to restrain Iraq with his thinly veiled threat that the United States might unleash a portion of its nuclear arsenal in response to the introduction of other weapons of mass destruction.

America's reliance on nuclear deterrence and strategic air power to backstop its position during the Cold War drew on existing air doctrine and theory. Likewise, the passing of nuclear weapons from center stage in the post–Cold War world does not mean that theories and ideas developed during the five decades following Hiroshima no longer apply. Airmen today seek many of the same effects with advanced conventional munitions that SAC's planners hoped to achieve with nuclear weapons. In one sense, the Air Force has come full circle since 1945. Early Cold War–era air plans sought to integrate widely accepted theory with a new form of highly destructive weaponry. Likewise today, modern precision weapons can produce "nuclear" effects, without, of course, the radiation and widespread collateral damage. Targeting what a state

values, striking it in a "parallel" fashion, and holding out the threat that escalation can lead to annihilation is an effective strategy, whether the means of destruction is a muffled explosion or a blinding flash of light.

Notes

1. Secretary of State James A. Baker III, quoted in William M. Arkin, "Calculated Ambiguity: Nuclear Weapons and the Gulf War," *Washington Quarterly Vol.* 19, No.4, pp. 3–18. Arkin doubts that the United States would have used nuclear weapons during Operation Desert Storm, even if Saddam had employed weapons of mass destruction. He notes, however, that the administration not only left Iraq unsure of American intentions vis-à-vis the employment of nuclear weapons, but the Pentagon as well.

2. Lawrence Freedman, "The First Two Generations of Nuclear Strategists," in Peter Paret, ed., *Makers of Modern Strategy from Machiavelli to the Nuclear Age* (Princeton, N.J.: Princeton University Press, 1986), p. 735.

3. The reader seeking a comprehensive review of the major literary works on nuclear policy and strategy should look elsewhere. The largely theoretical nature of the field of nuclear war has allowed legions of think-tank analysts, college professors, and assorted pundits to produce literally thousands of books and publications on the various aspects of a war as yet unfought. As Karl Mueller has written, the theoretical soil of nuclear strategy "has been cultivated nearly to the point of exhaustion, and in many places it has been virtually paved over by fifty years of intense study." Despite this condition, since the mid-1960s most work on the subject has generally built upon the work of Bernard Brodie, Thomas Schelling, and a handful of other writers from the "golden age" of nuclear theory. Karl Mueller, "Strategic Airpower and Nuclear Strategy: New Theory for a Not-Quite-So-New Apocalypse," a chapter in "Paths of Heaven," an unpublished collection of essays from the faculty of the USAF School of Advanced Airpower Studies, Maxwell AFB, Ala., pp. 278–279. Mueller's footnotes provide the reader with a comprehensive bibliography of the significant works on nuclear strategy. To be sure, the ideas expressed by many civilian experts significantly affected and molded national strategic policy. See, for example, Fred Kaplan, *Wizards of Armageddon* (New York: Simon & Schuster, 1983), p. 45.

4. John T. Greenwood, "The Emergence of the Postwar Strategic Air Force, 1945–1953," in Alfred F. Hurley and Robert C. Ehrhart, eds., *Air Power and Warfare,* Proceedings of the Eighth Military History Symposium, October 18–20, 1978, USAF Academy (Washington: GPO, 1979), p. 220. For a complete examination of the postwar Air Force's struggle to come to grips with its new independence as well as its role as the nation's atomic striking force, see Walton S. Moody, *Building a Strategic Air Force* (Washington: Air Force History & Museums Program, 1996). Brodie is cited on pp. 40–41. For full discussions of the "classical" air power theorists and their beliefs, see David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in Peter Paret, ed., *Makers of Modern Strategy from Machiavelli to the Nuclear Age* (Princeton, N.J.: Princeton University Press, 1986); Alan Stephens, "The True Believers: Air Power between the Wars," in Alan Stephens, ed., *The War in the Air, 1914–1994* (Fairbairn, Australia: Air Power Studies Center, 1994); and Barry Watts, *The Foundations of U.S. Air Doctrine: The Problem of Friction in War* (Maxwell AFB, Ala.: Air University Press, 1984). Watts argues that the postwar nuclear era deterrence theorists are "basically indistinguishable in their logic from those of Douhet, Mitchell, and Hansell based on the long-range bomber." For a review of the major theorists' own writings, see, for example, William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power, Economic and Military* (New York: Dover Publications, 1988), and Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (Maxwell AFB, Ala.: Air University Press, 1983).

5. Robert Jervis, "Deterrence and Perception," *International Security,* Winter 1982/1983, pp. 3–30.

6. *The United States Strategic Bombing Survey, European War/Pacific War,* Summary Report (Maxwell AFB, Ala.: Air University Press, 1987), p. 114.

7. Gen. Henry H. Arnold, quoted in Greenwood, p. 220.

8. *Ibid.*

9. Moody, chaps. 2, 3; Greenwood, p. 221. See also Harry R. Borowski, *A Hollow Threat: Strategic Air Power and Containment Before Korea* (Westport, Conn.: Greenwood Press, 1982).

10. A public relations release explaining the new Strategic Air Command's purpose summed up Air Force thought on nuclear deterrence at the dawn of the Cold War: "Destruction is just around the corner for any future aggressor against the United States. Quick retaliation will be our answer in the form of an aerial knock-out delivered by the Strategic Air Command." Some years would pass, however, before SAC's knockout blow made it off paper and into the air. Greenwood, p. 224; Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907–1960* (Maxwell AFB, Ala.: Air University Press, 1989), Vol. I, p. 216.

11. Mark Clodfelter, *The Limits of Air Power: The American Bombing of North Vietnam* (New York: The Free Press, 1989), p. 12.

12. David Alan Rosenberg "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945–1960," *International Security*, Spring 1983, pp. 3–71, 14; Aaron L. Friedberg, "A History of the U.S. Strategic 'Doctrine'—1945 to 1980," *The Journal of Strategic Studies,* Dec 1980, p. 40.

13. Wartime air commander, future Commander in Chief of SAC, and future Air Force Chief of Staff Gen. Curtis E. LeMay considered the war in the Pacific essentially won, largely through the strategic attack of Japanese cities, before the atomic attacks on Hiroshima and Nagasaki. See, for example, Richard H. Kohn and Joseph P. Harahan, eds., *Strategic Air Warfare: An Interview with Generals Curtis E. LeMay, Leon W. Johnson, David A. Burchinal, and Jack J. Catton* (Washington: Office of Air Force History, 1988); Curtis E. LeMay and MacKinlay Kantor, *Mission with LeMay: My Story* (New York: Doubleday & Co., 1965); Friedberg, pp. 37–71; Clodfelter, chap. 1.

14. David Alan Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," *The Journal of American History*, Jun 1979, pp. 62–87, 64.

15. Scott D. Sagan, *Moving Targets: Nuclear Strategy and National Security* (Princeton, N.J.: Princeton University Press, 1989), pp. 14–15; Rosenberg, "American Atomic Strategy," p. 66. Sagan notes that air power icon Alexander de Seversky quipped in *Readers' Digest* that the effects of the atom bomb "had been wildly exaggerated." See also Alexander de Seversky, *Air Power: Key to Survival* (New York: Simon & Schuster, 1950).

16. Sagan, *Moving Targets*, pp. 14–15; Rosenberg, "Origins of Overkill, pp. 12–13.

17. Moody, pp. 198–199.

18. Friedberg, p. 40.

19. Sagan, *Moving Targets,* p. 17; Rosenberg, "Origins of Overkill," p. 13.

20. Sagan, *Moving Targets,* p. 16; Rosenberg, "Origins of Overkill," p. 14; Rosenberg, "American Atomic Strategy," p. 69.

21. Samuel F. Wells, "Sounding the Tocsin: NSC–68 and the Soviet Threat," *International Security*, Fall 1979, pp. 116–158; Borowski, p. 210; Rosenberg, "American Atomic Strategy," p. 69. For a discussion of atomic targeting in support of NATO operations, see Peter J. Roman, "Curtis LeMay and the Origins of NATO Atomic Targeting," *The Journal of Strategic Studies,* Mar 1993, pp. 46–74. Numerous scholars have questioned the nature of the Soviet threat to the West in the late 1940s and early 1950s. At issue are both the size and preparedness of the Red Army and its air forces, especially in Europe. See, for example, Matthew A. Evangelista, "Stalin's Postwar Army Reappraised," *International Security,* Winter 1982/1983, pp. 110–138; John S. Duffield,

"The Soviet Military Threat to Western Europe: U.S. Estimates in the 1950s and 1960s," *The Journal of Strategic Studies,* Jun 1992, pp. 208–227.

22. The text of the Soviet announcement is in Message 2406, "The Ambassador in the Soviet Union (Kirk) to the Secretary of State," Moscow, Sep 25, 1949, in *Foreign Relations of the United States, 1949* (hereafter *FRUS, 1949*), Vol. V, *Eastern Europe: The Soviet Union* (Washington: GPO, 1976), pp. 656–657. See also Wells, "Sounding the Tocsin," p. 117.

23. "A Report to the National Security Council by the Executive Secretary (NSC–68)," Apr 14,1950, in *FRUS 1949*, Vol. I, *National Security Affairs, Foreign Economic Policy*, pp. 234–292. See also Wells, p. 133, and Rosenberg, "American Atomic Strategy." Marc Trachtenberg, "A 'Wasting Asset': American Strategy and the Shifting Nuclear Balance, 1949–1954," *International Security,* Winter 1988/1989, pp. 5–49.

24. Rosenberg, "American Atomic Strategy," p. 71; Rosenberg, "Origins of Overkill," p. 16; Moody, pp. 311–312; Roman, p. 51.

25. Col. Dale O. Smith, USAF, "Air Power as Peace Power," *Air University Quarterly Review*, Summer 1949, pp. 3–14, 9.

26. Lt. Col. George R. Charlton, USAF, "Industrial Vulnerability in the Atomic Age," *Air University Quarterly Review,* Fall 1949, pp. 13–23.

27. Maj. Gen. Orvil A. Anderson, "Air Warfare and Morality," *Air University Quarterly Review,* Winter 1949, pp. 5–14. For an interesting glimpse of strategic thought in the USAF in the early nuclear era, see "A Collection of Theses on Atomic Warfare," Air Command and Staff School, Air Force Historical Research Agency File 239.04349A–477. See, for example, Lt. Col. Ivan W. Hawes, "Selection of Targets for Retaliatory Atomic Weapon Attacks," Oct 1948.

28. Borowski, pp. 182–183, n 12; Rosenberg, "Origins of Overkill," p. 16.

29. Sagan, *Moving Targets,* p. 20; Rosenberg, "Origins of Overkill," p. 16. The code-names actually date from 1952. See David Alan Rosenberg, "A Smoking, Radiating Ruin at the End of Two Hours: Documents on American Plans for Nuclear War with the Soviet Union, 1954–1955," *International Security,* Winter 1981/1982, pp. 3–38, 9.

30. Samuel F. Wells, "The Origins of Massive Retaliation," *Political Science Quarterly,* Spring 1981, pp. 31–52. Wells concludes that Eisenhower's "New Look" policy thus continued rather than altered the defense priorities of the Truman administration.

31. Roman, p. 55; Kohn and Harahan, p. 87.

32. Wells, "Origins of Massive Retaliation," p. 33; Sagan, *Moving Targets,* p. 23. Dulles provided a rather comprehensive look at the Eisenhower administration's doctrine some months later. See John Foster Dulles, "Policy for Security and Peace," *Foreign Affairs* 32 (Apr 1954): 353–364. Eisenhower's basic defense policy was outlined in NSC–162, signed in October 1953. See documents relating to NSC–162 in "Report to the National Security Council by the National Security Council Planning Board," Washington, Sep 30, 1953, in *FRUS, 1952–1954,* Vol. II, *National Security Affairs,* pt. I, pp. 489–597.

33. Air Force Manual (AFM) 1–2, *Basic Doctrine*, Apr 1, 1953, pp. 4, 13. A revision of 1–2, issued the following year, reiterated these points.

34. AFM 1–8, *Strategic Air Operations*, May 1, 1954, pp. 1, 4, 7.

35. "U.S. Air Power Today: Its Capability and Its Needs," *Air University Quarterly Review,* Fall 1956, pp. 61–78.

36. *Ibid.,* p. 62–63; Friedberg, p. 41."Disruption," LeMay declared, meant far more than selective attacks: "Destroying that [industrial] base means blasting it down, plant by plant," or in this case, city by city. See also Rosenberg, "Smoking, Radiating Ruin," pp. 3–38.

37. Rosenberg, "Smoking, Radiating Ruin," pp. 7, 25.

38. Friedberg, p. 41.

39. Rosenberg, "Origins of Overkill" p. 65; Sagan, *Moving Targets,* p. 24.

40. *Ibid.*

41. Rosenberg, "Origins of Overkill," p. 64.

42. Department of the Air Force, AFM 1–2, *United States Air Force Basic Doctrine,* Dec 1, 1959, pp. 4, 8–9.

43. Desmond Ball, *Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration* (Berkeley: University of California Press, 1980), chap. 2; Scott Sagan, "SIOP–62: The Nuclear War Plan Briefing to President Kennedy," *International Security,* Summer 1987, pp. 22–51.

44. Robert S. McNamara, "The Military Role of Nuclear Weapons: Perceptions and Misperceptions," *Foreign Affairs,* Fall 1983, pp. 59–80.

45. "SIOP–62 Briefing JCS 2056/281 Enclosure, 13 September 1961," in Sagan, "SIOP–62," pp. 50–51.

46. Sagan, *Moving Targets,* p. 30; Friedberg, pp. 50–51; Desmond Ball and Robert C. Toth, "Revising the SIOP: Taking War-Fighting to Dangerous Extremes," *International Security*, Spring 1990, pp. 65–92; Leon Sloss and Marc Dean Millot, "U.S. Nuclear Strategy in Evolution," *Strategic Review,* Winter 1984, pp. 19–28. The new target categories were similar to the blunting, retardation, and disruption missions of the early 1950s.

47. Friedberg, pp. 52–53; Sagan, *Moving Targets,* p. 32–34. McNamara's shift, particularly in declaratory policy, gave rise to the impression that U.S. "strategy" for nuclear war consisted of simply obliterating Soviet cities, while the Soviets responded in kind. Yet McNamara's shift in emphasis to assured destruction did not force a revision of the counterforce and other major attack options in the SIOP. U.S. war plans changed little from 1962 to 1974. Thomas A. Fabyanic, *Strategic Air Attack in the United States Air Force: A Case Study,* Professional Study No. 5899 (Maxwell AFB, Ala.: Air War College, Apr 1976, pp. 130–132.

48. Department of the Air Force, AFM 1–1, *United States Air Force Basic Doctrine*, Aug 14, 1964, pp. 3-1–3-2.

49. AFM 1–8, May 1, 1954, p. 8. Ironically, though later editions of Air Force basic doctrine reflected the Kennedy administration's "flexibility," they provided an extremely narrow definition of general war. "General war," they stated "is armed conflict between the major powers of the communist and free worlds in which the total resources of the belligerents are employed, and the national survival of a major belligerent is in jeopardy." See AFM 1–1, Aug 14, 1964, p. 3-1.

50. AFM 2–11, *Strategic Aerospace Operations*, Dec 1, 1965, pp. 1, 3.

51. Friedberg, p. 54; Fabyanic, p. 137; Sagan, *Moving Targets,* p. 40.

52. Friedberg, pp. 55–57.

53. Sagan, *Moving Targets,* p. 43; Sloss and Millot, p. 23.

54. Sagan, *Moving Targets,* p. 45. For a full discussion of LNOs, see Lynn Etheridge Davis, *Limited Nuclear Options: Deterrence and the New American Doctrine*, Adelphi Paper No. 121 (London: The International Institute for Strategic Studies, 1976).

55. AFM 1–1. *United States Air Force Basic Doctrine*, Jan 15, 1975, pp. 1-2, 3-4–3-5.

56. *Ibid*., p. 3-5.

57. *Ibid*., p. 76.

58. Sloss and Millot, p. 25. Leon Sloss directed the study of nuclear targeting policy for the Secretary of Defense that led to PD–59 in 1980.

59. Sagan, *Moving Targets,* p. 49.

60. Ball and Toth, p. 77. For a full discussion of the Carter administration's strategy, see Walter Slocombe, "The Countervailing Strategy," *International Security,* Spring 1981, pp. 13–27. Slocombe served as Deputy Under Secretary of Defense for Policy Planning in the Carter administration. On the issue of ethnic targeting, see David T. Cattell and George H. Quester, "Ethnic Targeting: Some Bad Ideas," in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting* (Ithaca, N.Y.: Cornell University Press, 1986), pp. 267–284. The potential target base still numbered some 15,000 economic-industrial objectives. Desmond Ball, *Targeting for Strategic Deterrence,* Adelphi Paper No. 185 (London: The International Institute for Strategic Studies, 1983), pp. 32–34.

61. Ball and Toth, p. 77.

62. Fred Charles Ikle, "Strategic Principles of the Reagan Administration," *Strategic Review,* Fall 1983, p. 17. Ikle served as Under Secretary of Defense for Policy in the Reagan administration.

63. Ball and Toth, p. 67.

64. *Ibid*., pp. 71–72. A comprehensive, look at Reagan administration policy, including strategic defense, can be found in William P. Snyder and James Brown, eds., *Defense Policy in the Reagan Administration* (Washington: National Defense University Press, 1988). Jerome Slater and David Goldfischer discuss strategic defenses in part three of this book. (See their chapter, "Population Defense through SDI: An Impossible Dream," pp. 333–363.) For a small sampling of the enormous literature that appeared during the debate over SDI, see Fred S. Hoffman, "The SDI in U.S. Nuclear Strategy: Senate Testimony," and Charles L. Glaser, "Do We Want the Missile Defenses We Can Build?" both in *International Security,* Summer 1985, and Stephen J. Cimbala, "The Strategic Defense Initiative: Political Risks," *Air University Review*, Nov–Dec 1985, pp. 24–37.

65. See Edward N. Luttwak, "An Emerging Postnuclear Era?" *Washington Quarterly,* Winter 1988, pp. 5–15.

66. Lt. Col. Phillip S. Meilinger, USAF, "The Problem with Our Air Power Doctrine," *Airpower Journal,* Spring 1992, pp. 24–31. The fact that "strategic" and "nuclear" had become almost identical was reflected in an the title of an article written by CINCSAC Gen. John T. Chain, Jr. See Chain, "Strategic Bombers in Conventional Warfare," *Strategic Review,* Spring 1988, pp. 23–32.

67. AFM 1–1, *Basic Aerospace Doctrine of the United States Air Force*, 2 vols, Mar 1992. See pp. 11–12 in Vol. 1, and Essay P, "Strategic Attack," and Essay R, "Deterrence," both in Vol. 2.

68. See William J. Perry, *Report of the Secretary of Defense to the President and the Congress* (Washington: GPO, Mar 1996), p. 10. Gen. Eugene E. Habiger, Commander in Chief of the U.S. Strategic Command (SAC stood down in 1992), also wrote recently of the continuing need for a large-scale nuclear deterrent. See Eugene E. Habiger, "Strategic Forces for Deterrence," *Joint Forces Quarterly,* Winter 1996/1997, pp. 64–69.

69. Air Force Doctrine Document 2–1.2, *Strategic Attack, s*econd draft, Oct 10, 1996, p. 16.

70. AFM 1–1,Vol. 1, p. vii.

71. First and foremost among those favoring strikes against leadership elements to produce "strategic paralysis" is John Warden, a retired Air Force colonel and former commander of the USAF Air Command and Staff College. See, for example, two short pieces by John Warden, "The Enemy As a System," *Airpower Journal,* Spring 1995, pp. 40–55, and "Employing Airpower in the 21st Century," in Richard H. Shultz, Jr., and Robert L. Pfaltzgraff, Jr., eds., *The Future of Air Power in the Aftermath of the Gulf War* (Maxwell AFB, Ala.: Air University Press, 1992).

72. Mueller, p. 319.